

ARTE



Furling & Reefing Sail Systems

n. 10



Furling & Reefing Sail Systems



Hydraulic Systems



Sailing Hardware

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ELECTRIC MAINSAIL MOTORIZATION

The new electric motorizations mod. "130" and "160" for external and in-mast mainsail furlers complete the range. These furling devices have a high efficiency and may be fitted on mainsails with a sail area up to 150 sq.m.. Easy to fit, the motorizations have a cylindrical shape that simply replaces the manual mechanism on existing or new masts; they are supplied with a manual emergency clutch.

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"FLUSH-DECK" FURLERS WITH SELF-ALIGNING SPHERIC CONNECTION

New line of motorized "flush-deck" foresail furlers making use of a special self-aligning spherical connection. The system allows keep the motorization hidden below deck, thus leaving the deck tidy. These furlers are available in different dimensions with either electric or hydraulic motorizations, and may be equipped with an integrated cylinder to tension the stay.

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HIGH PERFORMANCE FURLING FOILS

A new line of double groove foils for foresail furlers. The sets are completed by anodised aluminium split connectors and Delrin half bearings. Their special shape gives them a high torque resistance and does not stress locking screws. When foils and connectors are locked together they become a monolithic structure. The range is composed by 9 foil sizes from 1,77 to 23,5 kg/m.

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MANUAL ROLLGEN

The manual RollGen range widens with the new RLG-CODE 30 and 40 used to furl asymmetric sails up to 1,000 sq.m. The systems are available in two different configurations: the RollGen version, with the special stay, allows you to furl all common types of free flying asymmetric sails of standard construction; the CODE version (stay not supplied) may be used to furl hoisted sails such as Code 0, drifters, etc.

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MOTORIZED ROLLGEN - CODE FURLER

The motorized version of ROLLGEN furlers is now available. The "spheric" version, designed to be fitted flush-deck, makes use of that special "self-aligning" construction enabling the stay to keep always the right angle. The electric MEJ version, on the contrary, is to be fitted either on a chainplate on deck, or on a bowsprit. Both systems may be used both with non-hoisted asymmetric sails (by using the special RollGen stay), and with sails hoisted on a stay, such as Code 0s, drifters, etc...

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"FLAT" TACKLE CYLINDER

It is an innovative device for the control of running rigging. It is made by a "push and pull" hydraulic cylinder combined with a system of flat and "self-standing" structure not only allows for an easy installation (genoa sheet below deck, halyards on the mast, integrated cranes, etc...), but also reduces its overall dimensions.

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STAY TENSIONING CYLINDER WITH SPHERIC FULCRUM

An innovative evolution of the "classic" hydraulic stay tensioning cylinder. It makes use of a special spherical connection on deck, which allows for the correct alignment of the stay and keeps the cylinder water tight below deck leaving the deck tidy. Available for inner forestays and backstays, it is designed depending on the loads required.

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HANDLE STAY ADJUSTER "BTM"

A new line of mechanical handle stay adjusters for wire stays from 8 to 22 mm diameter. The aluminium body is manufactured with CNC machines and then hardcote anodised; some parts are made of AISI 316 stainless steel. BTM's main characteristic is that both its extremities are telescopic. Moreover, the winch handle clutch may be oriented in order to avoid possible obstacles that could hinder its use onboard.

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QUICK RELEASE PINS

New range of quick release pins with diameters from 8 to 21,5 mm for 1x19 wire stays from Ø 5 to Ø 14 mm. They are supplied with a s.s. spring. The kit is completed by short lines which help opening and closing the pin and secure it in order not to loose it. They represent the ideal solution for inner forestay tensioners or standing rigging that need to be "running" with a simple operation.

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Fixed and disappearing **PAD EYES** for super yachts, manufactured in stainless steel type AISI 316, SAFF 2205 and 17-4PH. The range includes models with breaking loads from 6 to 48 tons.

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SHEAVES AND DECK ORGANISERS

Custom products manufactured either upon original design or following the customer's specific needs. They are expressly made for super yachts. The sheaves used can hold high loads (4 to 120 Ton) and their diameters vary from 120 to 1000 mm. Applications: organisers guiding sheets/halyards to captive winches, deck organisers, etc...

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STANDING BACKSTAY WIRE BLOCK

A special block made to split backstays. The stainless steel pulley's groove has a special shape in order to be compatible with multi-strand wire ropes, thus granting its durability.

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CAPTIVE WINCHES

A new range of stowing mechanisms for the automatic management of sheets and halyards. They are destined for boats from 15 to over 75 m. The series includes Captive Winches with dynamic loads from 1 to 34 Tons. Motorizations may be either electric or hydraulic. The systems are supplied with a "slack sheet" device and may be completed with sheaves and deck organisers for the passage of sheets.

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A.R.TE. - Advanced Research & Technology – began its activity in 1997, after having acquired the trademark and technology of Bamar. The aim is to innovate in the relationship between man, sea and sailing thanks to the introduction of technologically advanced accessories that may automatize sailing operations.

Constant design evolution and experimentation on sail furling systems, together with the experience acquired in working with famous international boatyards, have led the company to become an important reference in the sailing world.

Bamar trademark, today A.R.TE.'s main brand name, has accompanying for more than two decades people who go to sea, offering them a wide range of mechanisms and accessories for small, medium and large sailing yachts.

Bamar products are the result of the intuition and experience of some passionate sailors and technicians who have put together their knowledges, thus creating with extraordinary sense of invention some real technological jewels for sailors.

Moreover, A.R.TE. obtained the exclusive right to import and distribute in Italy the well-known trademarks Nautos, Sta-Lok and Duralac.



DAME
Design award mets



Gemini 52' MED - Gemini Yachts, photo ActionImage/De Maria/Canon

ARTE
Advanced Research and Technology srl



ARCHITECTURE AND CONSTRUCTION

Thanks to innovative technology, the attention towards design and the versatility of use, A.R.TE. products find their application also in vanguard architectural and decorative creations.

Manual and electric reefing and furling systems, normally used on sailing yachts, may contribute in the realization of unique works of art, such as the "Bolla", created by the architect Renzo Piano for the G8 held in Genoa in 2001. A.R.TE. supplied the Bamar electric furling systems MEJ1. These furlers are used to move the sails that shade the plants and the exhibition area inside the structure.

And again, Bamar manual jib furlers C1 are used by a well-known pub in Milano Marittima (a famous Italian tourist resort) to create a special setting with a sea and futuristic appeal.

Sta-Lok toggles, tension wires and accessories, for which A.R.TE. acts as exclusive distributor for Italy, are perfect for stretched flexible structures and for interior decoration .

GFM C1
"Crociera"



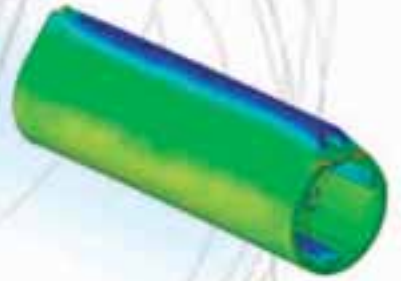
bamar[®]
Furling & Reefing Sail Systems
MEJ 10.2



STA-LOK[®]
RIGGING HARDWARE



Safe and strong furling foils:
an original design that has
succeeded the toughest "Final
Elements Analysis" or F.E.A.



DESIGN AND ENGINEERING

In January 1997, A.R.T.E. officially acquired the exclusive rights to use and sell the trademark and technology of Bamar, which, thanks to its twenty-year long experience is able to ensure the highest reliability of manual, electric and hydraulic furling systems and accessories.

A.R.T.E.'s engineering department is busy in developing highly technological CAD- projects, and never stops searching for new materials and solutions to avoid every possible unexpected event while sailing.

Besides, A.R.T.E. co-operates with a team of mechanical engineers who, in their universities, check the critical points and the most stressed parts of the prototypes and finally carry out final elements analysis (F.E.A.).

Thanks to these studies on materials and resistance of components, weights can be reduced, and the design is given an extra guarantee of performance and safety.

The validity of Bamar innovations is witnessed by the recognition obtained in famous international events, such as METS in Amsterdam, where the R-MEJ, the electric motorization for all models of manual foresail reefing and furling systems, has been nominated for the DAME AWARD 2001.

GFI 16C

RLG-CODE
SI WL10

GFSIC 16

Captive winch

MEJ 1.02

PRODUCTION AND CNC MACHINING

Quality and technological innovation are the key words for the production and machining of Bamar products.

A.R.TE.'s workshop, which is equipped with sophisticated CNC machines and highly technical personnel, manufactures mechanical parts for sailing yachts from 5 metres to over 60 metres.

The production range includes simple as well as complex mechanisms, tested and ready to be installed on board. Moreover, the workshop manufactures custom automatic systems based on the customer's specific demands.

Safety while sailing is the first rule of Bamar products. In order to guarantee the relationship between load and resistance of components, the machining process provides for the pieces to be machined directly from bars and not made out of casting, which is a less complex process but not so reliable.

Finally, the materials go through mechanical resistance and is either HARDCOTE anodised

surface and thermal treatments in order to guarantee the maximum protection from corrosive agents. As for aluminium, each part and/or coated with special ceramic cover.





WAREHOUSE AND ASSEMBLY

The warehouse stocks the range of Nautos, Sta-Lok and Duralac products, for which A.R.T.E. is Sole distributor in Italy, as well as Bamar products, divided into specific codes.

The warehouse staff checks for the last time the products that have been machined in the mechanical workshop. They test the functionality and integrity of components, and finally they customize them under Bamar standards.

The products are then equipped with their accessories, instruction and guarantee manuals. Finally they are packed into specific boxes, which have been expressly realized for all forms and dimensions in order to guarantee the safety of parts during shipment.





MANAGEMENT AND SERVICE

A.R.T.E. has adopted a new managerial software which allows a complete synergy between the different business areas, thus granting a continuous monitoring of the clients needs.

The company combines the excellent quality of the product with an accurate pre- and post- sale assistance. This contributes to the long- term relationship between A.R.T.E. and its customers.

All products needing installation are supplied with a multilingual instruction manual for the use and maintenance of the system.

The sailor who chooses Bamar products can always rely on the company. Wherever they may be, in case of troubles with the systems, A.R.T.E. will immediately activate to solve the problem immediately.



ADVERTISING AND COMMUNICATION

A.R.T.E. has become an important reality in the marine world and it is appreciated and well-known on an international level.

The range of Bamar products is advertised on famous specialized magazines. As for boat shows, the company participates directly or through its distributors to the most important international events.

A.R.T.E. is also present on the internet at: www.bamar.it & www.rollgen.com
 Surfers can visit our multilingual web sites full of information and technical data, easy and fast to consult. What's more, besides the descriptions of the single products, users can download Pdf- files of the instruction manuals and contact directly the persons responsible for the different areas.

Barcelona



Chicago



Genova



Amsterdam



Miami



Paris



London
 Southampton
 Auckland
 Friedrichshafen
 Hamburg
 Düsseldorf
 Budapest
 USA-Annapolis
 USA-St.Petersburg
 USA-Atlantic City
 USA-Oakland
 Helsinki
 Athens
 Istanbul
 Tulln
 Sydney
 Montecarlo





PROMOTIONAL MATERIAL

Bamar products, designed and realized by A.R.T.E., are distributed abroad through a net of dealers and specialized shops covering every continent.

The company participates to international boat shows through its distributors. In order to create a strategy of integrated communication, A.R.T.E. worked out a line of promotional materials to decorate show rooms and shops where Bamar accessories are sold.

The promotional line includes displays, posters, advertising material, stickers and gadgets, which can be ordered directly from the company or through the local distributor.



(AAo) CLOTHING AND MERCHANDISING

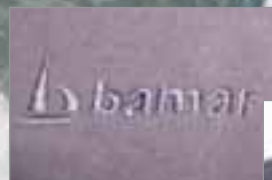
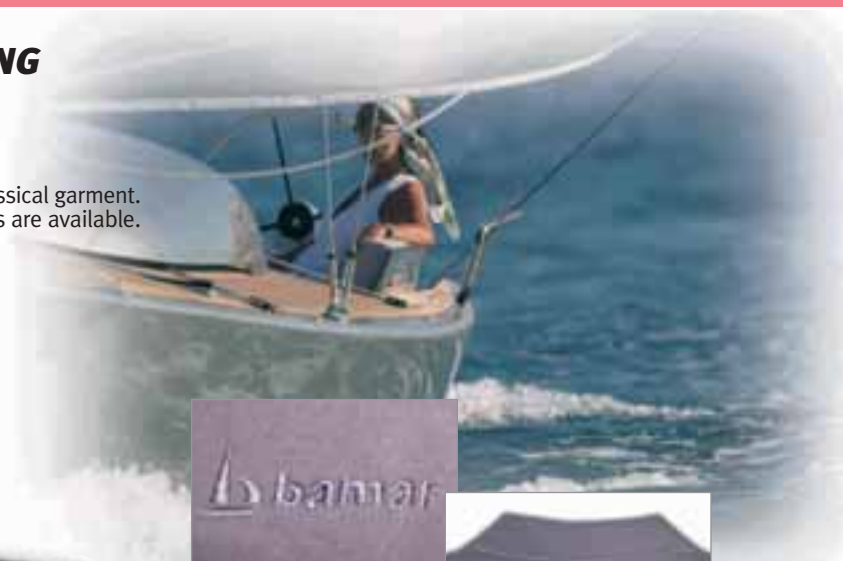
POLO SHIRT

Bamar short-sleeved Polo shirt with two buttons is the most classical garment. It is made in 100% piqué cotton of the best quality. Four colours are available. Bamar Polo shirt is offered in the version:

- with "Bamar" embroidery on the front
- with "Bamar" embroidery on the front and "ROLLGEN" embroidery on the back.

All shirts are available in S – M – L – XL – XXL

● Navy Blue
 ● Light Blue
 ● Yellow
 ○ White



PIQUE POLO SHIRT	EMBROIDERY	code
white	Bamar	716011000
light blue	Bamar	716012000
yellow	Bamar	716013000
navy blue	Bamar	716015000
white	Bamar + RollGen	716021000
light blue	Bamar + RollGen	716022000
yellow	Bamar + RollGen	716023000
navy blue	Bamar + RollGen	716025000

Please, specify the size when placing the order

CAPS

They are adjustable and made in six panels. Bamar logo is embroidered on the front. Two colours are available.

CAP	EMBROIDERY	code
navy blue	Bamar	716055000
grey	Bamar	716056000

● Navy blue
 ● Grey



WARRANTY ABSTRACT

Coverage period: Bamar products are warranted for 2 (two) years, with the following exceptions:

6 years	manual furling and reefing systems, manual stay adjusters, mechanical kickers
6 years	hydraulic furling and reefing systems
1 year	electric and hydraulic motors used for furling systems and winch motorizations; custom products; special installations of standard catalogue products for extraordinary use applications.

What is not covered: normal rope wear, transmission belts, bearings. Moreover, we do not cover: electric motors, switches, thermal magnets, solenoids, etc... that were improperly installed.

How to start the warranty: within 15 days from the date of purchase, fill in and send to A.R.TE. srl the card that you get with the product or within its instruction manual.

What does warranty mean: the manufacturer has to repair or replace parts that turn out to be defective because of poor quality materials or machining. **In order to have products repaired or replaced under warranty you have to:** send us the system or parts of it to be repaired or replaced together with the copy of a document proving purchase. All shipments are at customer's charge.

Should the buyer request defective components to be replaced at their location: the labour of technicians, travel expenses, subsistence, as well as shipping costs for the return and replacement of the equipment or parts of it, will be at Buyer's charge. Will apply tariffs in force at the time of the service.

Warranty is void if:

- Payment terms are not respected
- The warranty period has expired even if the equipment has seldom or ever been used
- The system shows evident damage caused by the User's negligence
- Non authorized personnel (persons with no service contract) carry out repairs or modifications on the product even if they have previously asked the manufacturing company for advice
- The equipment is used in unsuitable conditions and for applications for which it was not intended
- You use consumption material that has not been recommended by the manufacturing company
- You install and maintain the equipment without following the suggestions and the specifications shown on the instruction manual
- The equipment is improperly installed

Nothing will be due to the Client for the time the system is not used.

Consequential and incidental damages are not recoverable under this warranty.

Warranty claims have to be presented directly the manufacturing company.

The time needed for repair, even if under warranty, does not extend the warranty period.

The warranty does not include: all parts of a system that we do not manufacture ourselves: their Manufacturers' warranties will apply.

In order to solve most problems: carefully read the instruction manual, in a second instance contact our dealer. If you do not manage to solve possible problems, contact our after-sale service.

Spares: in case of needs always contact the manufacturing company. Such parts will be supplied for free only if they are part of the warranty. Shipping costs will always be at Client's charge. Pieces to be replaced or repaired have to be sent to us free of charge. Should you replace the parts your self without asking us for advice, expenses will not be reimbursed, even if the equipment is covered by warranty.

MAINTENANCE

Avoid contact between stainless steel and aluminium, by using Teflon grease, anti-corrosion products like Duralac, or sealing products, for screws and pins.

Some simple maintenance rules:

Short inactivity (weekly):

- Wash and rinse the equipment with fresh water in order to wash off salt crystals from its surface.

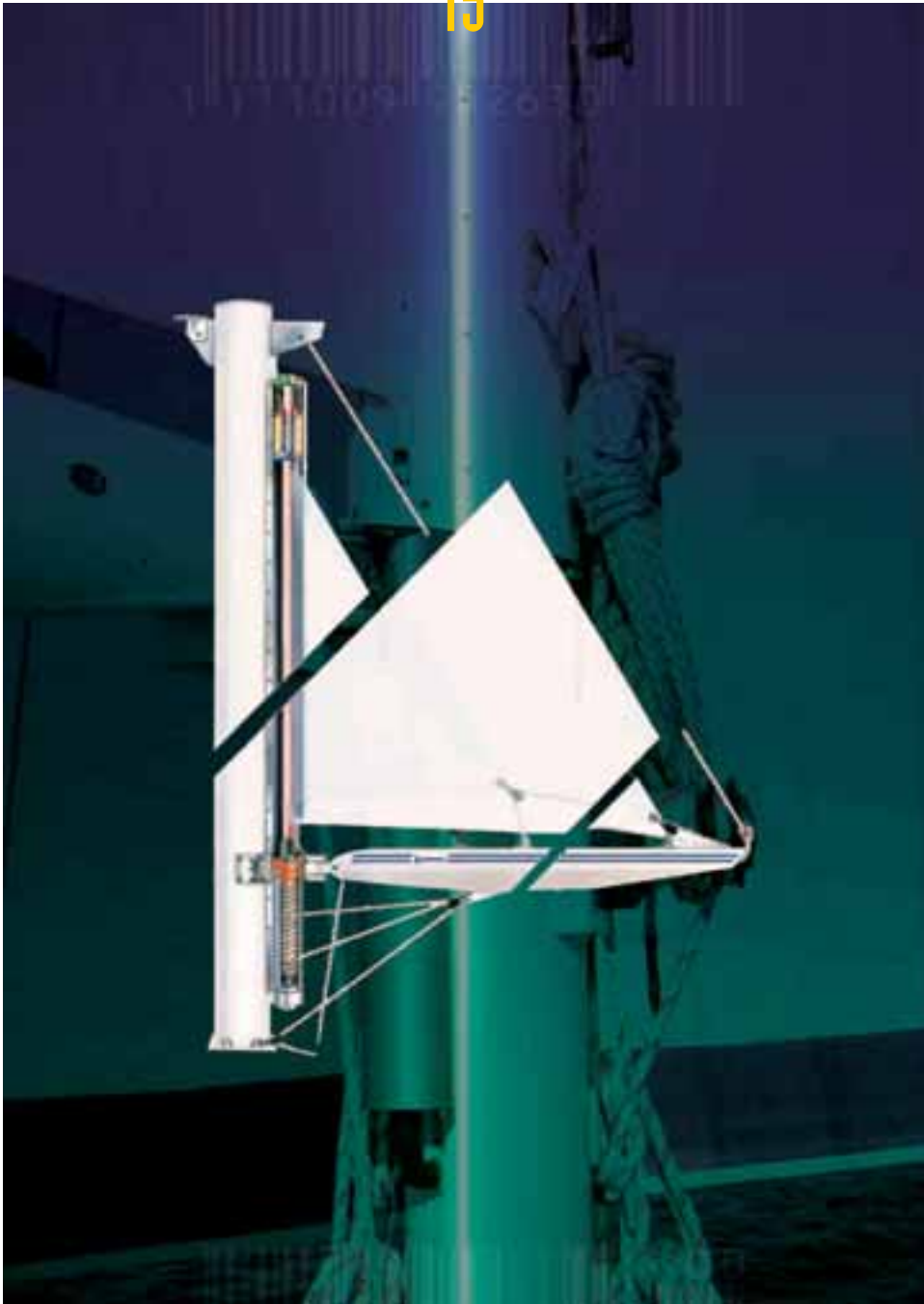
Long inactivity:

- Wash and rinse the equipment with fresh water in order to wash off salt crystals from its surface and protect it with specific lubricating products.





PERINI CUP 2004 - Borlenghi, Ferri, Campagnolo



Bamar offers a wide range of mainsail furlers to be fitted externally to the mast and mechanisms to be housed inside masts with special section for vertical mainsail furler. These systems are available in manual, electric and hydraulic versions.

MAINSAIL FURLER

Bamar mainsail furlers are clever solutions that provide safety and comfort, without forgetting aesthetics. Lowering down or hoisting sails without dangerous acrobatics, staying in the cockpit and keeping total control over the boat, these are opportunities that enhance the pleasure of sailing.

Moreover, Bamar proposes the famous outhaul system that makes the use of the vertical motorization simpler during furling operations. This is because the two motorizations work in almost total synchronism.



MAINSAIL FURLING SYSTEMS

MANUAL (A10) AND ELECTRIC (A12) EXTERNAL MAINSAIL FURLER	EXTERNAL MAINSAIL FURLER FOIL SECTION:	PRODUCT ABBREVIATION	REFERENCE TO MAINSAIL EXTERNAL FOIL					
			BA 70	BA 80	C	D	E	
A10 Manual External Mainsail Furler	BAMAR	RGEM						
A12 External Electric Mainsail Furler	BAMAR	RGEEL		BA 80	C	D	E	
MANUAL (A20) AND ELECTRIC (A22) IN MAST FURLER	MAST SECTION:	PRODUCT ABBREVIATION	REFERENCE TO HALYARD SWIVEL DIMENSION (the choice depends on the mast internal diameter)					
A20 Manual In Mast Mainsail Furler	BRANDS NOT SPECIFIED	RGIM	80	90	110			
A22 In Mast Electric Mainsail Furler		RGIEL	80	90	110	130	160	
ELECTRIC MOTORIZATION FOR EXTERNAL MAINSAIL FURLER (A25)	EXTERNAL MAINSAIL FURLER FOIL SECTION:	PRODUCT ABBREVIATION	REFERENCE TO MAINSAIL EXTERNAL FOIL					
A25	BAMAR	RRGEEL	BA 80	C	D	E		
A25	SELDEN-FURLEX MAIN	RRGEEL	90	108				
A25	Z SPARS	RRGEEL	Z 110					
ELECTRIC MOTORIZATION FOR IN MAST FURLER (A35)	MAST SECTION:	PRODUCT ABBREVIATION	REFERENCE TO MAST FOIL					
A35	BAMAR	RRGIEL	BMR 70	BMR 100	BMR 125	BMR 140	BMR 165	
A35	SPARCRAFT	RRGIEL	F 560E	F 760E	F 980E	F 1410E	F 1980E	F 2600E
A35	SELDEN RB/RC/RD	RRGIEL	*STANDARD 80		*STANDARD 110		*STANDARD 130	*STANDARD 160
A35	Z SPARS	RRGIEL	Z 600E	Z 700E	Z 800E	Z 900E	Z 1100E	Z 1400E
A35	HOOD	RRGIEL	8851	9553	1057/1157	1267/1367	1582/1882	1511/2211/2411
A35	NEMO	RRGIEL	NE 98	NE 115	NE 145	NE 200		
ELECTRIC OR HYDRAULIC MAINSAIL MOTORIZATIONS "VSF" WITH SYNCHRONIZED OUTHAUL FOR INTERNAL OR EXTERNAL FITTINGS	PRODUCT TO BE APPLIED TO:	PRODUCT ABBREVIATION	REFERENCE TO SAIL AREA m ²					
A50 RGEL Electric Mainsail Motorization "VSF"	BAMAR, SPARCRAFT, SELDEN, Z SPARS, HOOD, NEMO	RGEL	35	65	95	120	240	
A51 TBEL Electric Outhaul "VSF"		TBEL	35	65	95	120	240	
A60 RGI Hydraulic Mainsail Motorization "VSF"		RGI	35	65	95	120	240	
A61 TBI Hydraulic Outhaul "VSF"		TBI	35	65	95	120	240	

*motorizations to be customized when we receive the relevant technical information on mast dimensions and existing manual coil drive.

- BLUE COLOUR: motorization basic model 80 (max sail area 40 m²).
- RED COLOUR: motorization basic model 110 (max sail area 80 m²).
- PURPLE: motorization basic model 130 (max sail area 120 m²).
- GREEN: motorization basic model 160 (max sail area 160 m²) length

Technical data and drawings are indicative and not binding.

For technical information on motorization models 80 and 110 please refer to page 27-28.



EXTERNAL MAINSAIL FURLER

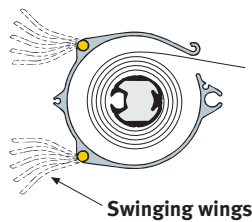
When installing an external mainsail furler, you do not have to replace the existing mast and boom. The equipment is designed and built in order to adapt to any structure (the system may be installed on both aluminium and wooden masts). The external foils to be fitted to the mast are 2.5 m long (6 m for type "E") and have an integrated groove that may be used to hoist a traditional mainsail in case of emergency. The groove supports both hooks and luff tape.

The foils are to be installed on aluminium masts with the rivets supplied. Should you have a wooden mast, the rivets will have to be replaced by s.s. screws.

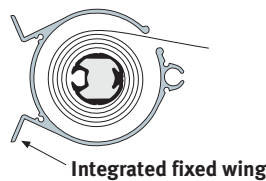
There are five models available with different external foil diameter depending on the sail to be stowed in when it is furled.

How to choose the mainsail furler:

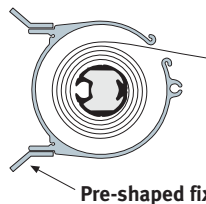
Determine the model by finding out the P (sail hoisting length) and E (sail base).



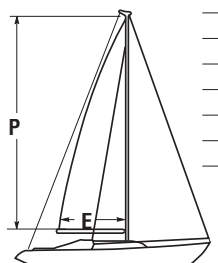
R.G.E. foil type "BA 70" and "BA 80"



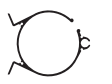
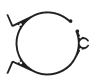
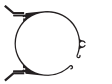


R.G.E. foil type "C" and "D"



R.G.E. foil type "E"



Model	BA70	BA80	C	D	E
R.G.E. foil					
Max E m*	3,2*	4,2*	5,7*	6,7*	10,0*
Max P m	13,0	15,5	18,0	20,5	30,0
Internal diameter mm	70	80	90	105	150
Foil length m	2,50	2,50	2,50	2,50	6,00
Weight kg/m	1,72	2,70	3,30	4,18	6,10
Car breaking load kg	600	1.000	1.600	3.000	Depending on measure
Sail g/m ² (indicative)	281	323	365,4	398	Depending on measure

The mainsail furlers' standard finish is silver anodising. On request, we may supply black and bronze anodising, and white painting RAL 9010.

*Data expressed are indicative and need to be checked with the sail-maker depending on the cut, cloth and thickness of the sail.

(A 10) MANUAL EXTERNAL MAINSAIL FURLER RGEM

This system is the precursor of all vertical furling systems on the market. It has started the fashion of vertical external mainsail furlers. It is characterised by the famous “worm screw” coil drive that grants a correct stowage of the furling line avoiding all possible overlaps while furling. The coil drive is made of silver anodised aluminium, and integrates a ball bearing bush protected by seals and OR.

Another important mechanical component is the halyard swivel that connects the halyard to the sail. It is made of silver anodised aluminium, and rotates on ball bearings protected by seals and OR that grant a tight seal.

Watertight halyard swivel



The manual external mainsail kit is delivered in a strong 2,600 mm long hard board box (apart from the E system which is longer) and includes:

- sail stowing foils
- furling foils and connectors
- halyard swivel
- terminal
- gooseneck connecting the boom to the mast
- “worm screw” coil drive with furling line
- screws and rivets

- boom modification: track with terminals, screws and fixing plates, cars running on ball bearings, three blocks to take the line down to the mast foot.

Optional material:

- built in block for the boom for line of 14 mm diameter max.
- adapter for C and D models to be fitted to masts with tapered aft face.

Not included:

- Sail
- Deck equipment
- Outhaul

The use of well lubricated, sliding blocks and accessories, and a correct maintenance guarantee the good operation of the system.



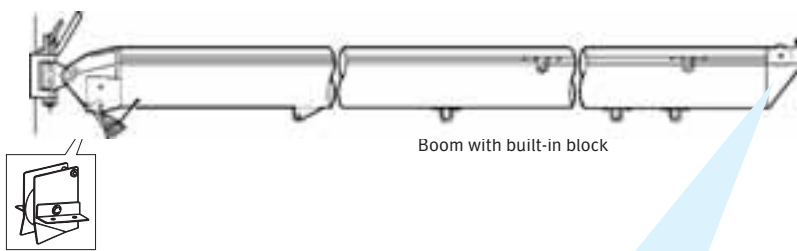
Coil drive / worm screw



Window / Sail hoisting section

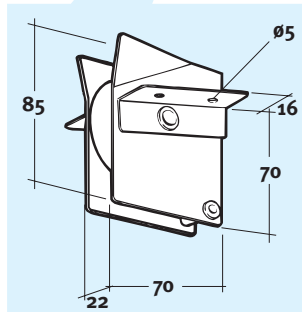


Car and track fitted on the boom



Boom with built-in block

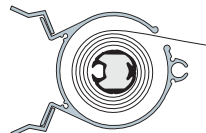
Built-in block



Adapter foil



Existing mast

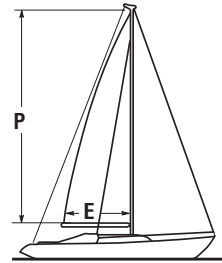


RGEM “E”



HOW TO ORDER THE MAINSAIL FURLER:

- Choose the mechanism depending on P and E measurements
- Choose the accessories to complete the system
- Specify the diameter of the pin on the boom goose neck that fits the existing boom toggle (see dimensioning table)
- Check that under the boom there is enough room for the coil drive.



In the table below you will find the codes that help you place the order.

Codes to order **RGEM**

MODEL	RGEM BA70	RGEM BA80	RGEM C	RGEM D	RGEM E
E MAX m *	3,2*	4,2*	5,7*	6,7*	10,0*
P MAX 8,0 m	101001020300	101002020300			
P MAX 10,5 m	101001030400	101002030400	101003030400		
P MAX 13,0 m	101001040500	101002040500	101003040500	101004040500	
P MAX 15,5 m		101002050600	101003050600	101004050600	
P MAX 18,0 m			101003060700	101004060700	101005060700
P MAX 20,5 m				101004070800	
P MAX 24,0 m					101005091200
P MAX 30,0 m					101005111400

*Data expressed are indicative and need to be checked with the sail-maker depending on the cut, cloth and thickness of the sail.



(A14) Extra colour

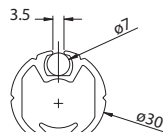
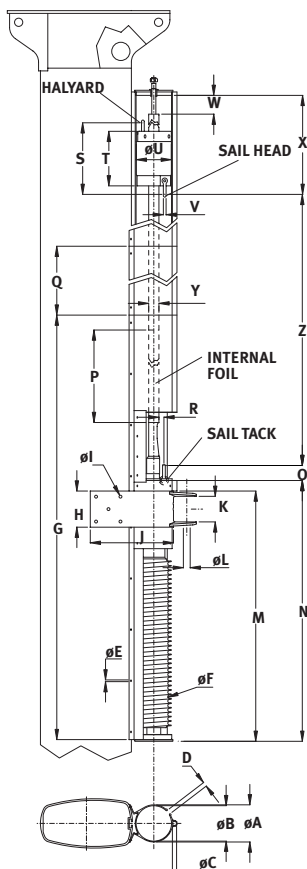
MODEL / COLOUR	RGEM BA70	RGEM BA80	RGEM C	RGEM D	RGEM E*
Black anodising	901010301	901010401	901010501	901010601	901010701
Light bronze anodising	901010302	901010402	901010502	901010602	901010702
White painting RAL 9010	901010303	901010403	901010503	901010603	901010703

*For RGEM "E" the price of colours is given per meter.

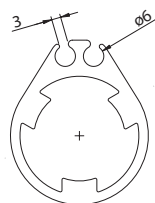
(A14) Other accessories

MODEL / ACCESSORY	RGEM BA70	RGEM BA80	RGEM C	RGEM D	RGEM E
Ball bearing built-in block	901010101	901010101	901010101	901010101	
Adapter foil			901010801	901010802	Included**

** Mast section needed.



BMG 30T



BMG 52
43x52 mm

MODEL	BA70	BA80	"C"	"D"	"E"
ø A (mm)	74	84	94	110	158
ø B (mm)	70	80	90	105	150
ø C (mm)	8	8	12	12	12
D (mm)	10	10	13	13	22
ø E (mm)	5	5	5	5	5
ø F (mm)	8	8	10	10	12
G (mm)	995	1065	1095	1255	1500
H (mm)	80	80	106	106	200
ø I (mm)	6,5	6,5	8,5	8,5	10,5
J (mm)	185	185	225	225	325
K (mm)	63	63	75	75	100
ø L MAX (mm)	12	12	18	18	25
M (mm)	465	535	570	735	1035
N (mm)	505	575	610	765	1000
O (mm)	40	40	47	40	50
P (mm)	2500	2500	2500	2500	3000
Q (mm)	2500	2500	2500	2500	6000
R (mm)	12	12	12	15	20
S (mm)	160	180	180	210	320
T (mm)	135	150	150	160	210
ø U (mm)	68	77	88	103	150
V (mm)	5	6	6	8	10
W (mm)	50	50	50	50	80
X (mm)	260	260	260	290	400
Y (mm)	BMG 30T	BMG 30T	BMG 30T	BMG 30T	BMG 52
HALYARD SWIVEL (Kg)	1	1,5	2	3	4,5
FOIL (Kg/m)	0,62	0,62	0,62	0,62	1,77
COIL DRIVE (Kg)	4	5	6	12	16
Z	SAIL LENGTH (DEDUCT LASHINGS AND STRETCH)				

(A12) ELECTRIC EXTERNAL MAINSAIL FURLER RGEEL

Thanks to the attention given both to technical developments and to the always evolving requirements of customers, Bamar presents an external electric mainsail furler to be fitted to the existing mast. It is supplied with a motorization that replaces the classic manual “worm screw” coil drive. This solution allows you to reef, furl and unfurl the sail by simply pushing a button from the cockpit.

The external foils that stow the sail and the internal ones on which the sail furls are the same than the ones used on the manual system (see section “external mainsail furler” on page 17)

The motorization has a cylindrical shape and is available for either 12 or 24 Volts installations. Its consumption is extremely low, as we use permanent magnet motors with a high efficiency epicyclic transmission. Therefore, electric motors have very low power consumption. When furling, the smallest 12-volt models absorb 18 amps, and the biggest model absorbs a maximum of 40 amps.

The furling speed is of 40 RPM on the axis of the furling foil.

Reefing is guaranteed by the integrated electromagnetic brake.

Several optional electric accessories are available: BOXTRON, an electronic box that controls the ampère consumption and prevents possible electric overloads caused by wrong use; different models of switches; radio-controls; throughdeck fittings (refer to “Electric Accessories” section, page 46).

The motorization is also supplied with a manual emergency clutch to be used with a standard winch handle, should the electric system fail. Bamar also supplies some adapters to be used on the manual emergency clutch: electric drill adapter; articulated adapter with double handle; jack adapter (refer to page 47)

The external electric mainsail furler kit is delivered in a 2.6 m long strong hard board box and includes:

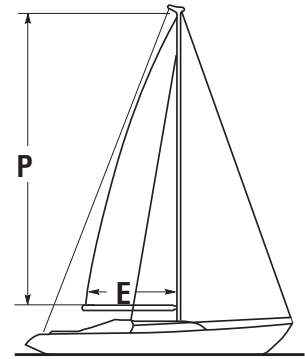
- Sail stowing foils
- Furling foils and connectors
- Halyard swivel
- Terminal
- Gooseneck connecting the boom to the mast
- motorization
- screws and rivets
- boom modification: track with terminals, screws and fixing plates, cars running on ball bearings.



HOW TO ORDER THE MAINSAIL FURLER:

- Choose the mechanism depending on the P and E measurements
- Check the boat's voltage
- Choose the accessories to complete the system
- Specify the diameter of the pin on the boom goose neck fitting the existing boom toggle (see dimensioning table)
- Check that under the boom there is enough room for the motorization.

In the table below you will find the codes to help you place the order:



Codici per ordinazione RGEEL

MODEL	VOLTAGE	RGEEL BA80	RGEEL C	RGEEL D	RGEEL E
Motorization		80	80	80	130
E MAX m*		4,2*	5,7*	6,7*	10*
P MAX 8,0 m	12 V	101202020301			
	24 V	101202020302			
P MAX 10,5 m	12 V	101202030401	101203030401		
	24 V	101202030402	101203030402		
P MAX 13,0 m	12 V	101202040501	101203040501	101204040501	
	24 V	101202040502	101203040502	101204040502	
P MAX 15,5 m	12 V	101202050601	101203050601	101204050601	
	24 V	101202050602	101203050602	101204050602	
P MAX 18,0 m	12 V		101203060701	101204060701	101205060301
	24 V		101203060702	101204060702	101205060302
P MAX 20,5 m	12 V			101204070801	
	24 V			101204070802	
P MAX 25 m	12 V			101204070801	101205160401
	24 V			101204070802	101205160402
P MAX 30 m	12 V				101205170501
	24 V				101205170502

*Data expressed are indicative and need to be checked with the sail-maker depending on the cut, cloth and thickness of the sail.

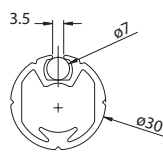
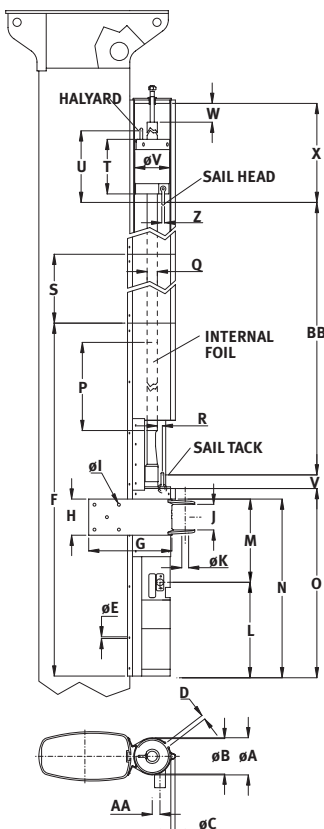
As for extra accessories and colours, please refer to section "Manual external mainsail furler – RGEN" (pag. 18).

Technical details:

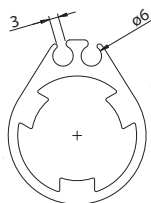
The electric cables supplied with the system are 5 m long.

We also suggest buying an elbow through deck fitting \varnothing 15 mm and the classic toggle switch (page 46).

For information on the electric motorization please refer to pages 27-28.



BMG 30T



BMG 52
43x52 mm

MODEL	BA80	C	D	E
\varnothing A (mm)	84	94	110	157
\varnothing B (mm)	80	90	105	150
\varnothing C (mm)	8	12	12	12
D (mm)	10	13	13	20
\varnothing E (mm)	5	5	5	5
F (mm)	1045	1045	1045	6500
G (mm)	185	225	225	305
H (mm)	80	106	106	su misura
\varnothing I (mm)	6,5	8,5	8,5	su misura
J (mm)	63	75	75	su misura
\varnothing K MAX (mm)	12	18	18	su misura
L (mm)	290	290	290	330
M (mm)	240	240	240	393
N (mm)	530	530	530	723
O (mm)	570	570	570	777
P (mm)	2500	2500	2500	1500
Q	BMG 30T	BMG 30T	BMG 30T	BMG 52
R (mm)	14	15	15	15
S (mm)	2500	2500	2500	3000
T (mm)	150	150	160	146
U (mm)	180	180	210	238
\varnothing V (mm)	77	88	103	104
W (mm)	50	50	50	100
X (mm)	260	260	290	400
Y (mm)	40	47	40	39
Z (mm)	6	6	8	10
AA (mm)	23	23	23	33
HALYARD SWIVEL (Kg)	1,5	2	3	2
FOIL (Kg/m)	0,62	0,62	0,62	1,77
MOTORISATION (Kg)	9,5	11	13	

BB SAIL LENGTH (DEDUCT LASHINGS AND STRETCH)

(A20) MANUAL INTERNAL MAINSAIL FURLER RGIM

Mainsail furling mechanism to be fitted inside mast foils with special section for vertical internal mainsail furler.

It is characterised by the famous “worm screw” coil drive that grants a correct stowage of the sail furling line, avoiding all possible overlaps while furling. The coil drive is made of silver anodised aluminium, and integrates a ball bearing bush protected by seals and OR.

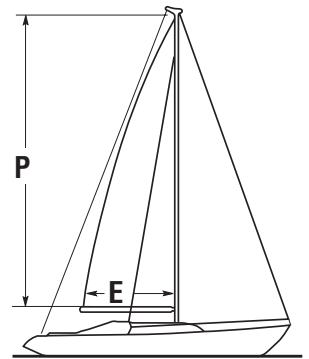
Another important mechanical component is the halyard swivel that connects the halyard to the sail head. It is made of silver anodised aluminium, and rotates on ball bearings protected by seals and OR that grant a tight seal.

The manual internal mainsail kit is delivered in a strong 2,600 mm long hard board box and includes:

- Furling foils and connectors
- Halyard swivel
- Terminal
- “worm screw” coil drive with furling line

The use of well lubricated, sliding blocks and accessories, and a correct maintenance guarantee the good operation of the system.

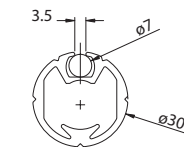
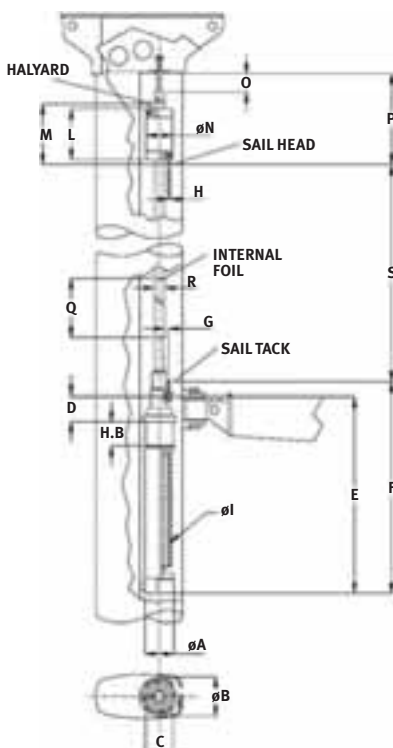
In the table below you will find the codes to help you place the order.



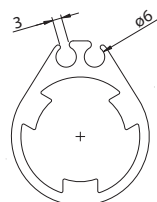
Codes to order **RGIM**

MODEL	RGIM 80	RGIM 90	RGIM 110	RGIM 130
E MAX m*	5,0*	6,0*	8,0*	8,0*
P MAX 15,0 m	101102050000			
P MAX 17,5 m		101103060000		
P MAX 20,0 m			101104070000	
P MAX 25,0 m				101106160000

*Data expressed are indicative and need to be checked with the sail-maker depending on the cut, cloth and thickness of the sail.



BMG 30T



BMG 52
43x52 mm

MODEL	80	90	110	130
ø A (mm)	85	95	112	130
*ø B MIN (mm)	100	120	140	150
H. "B" (mm)	70	80	100	110
C (mm)	85	100	120	140
D (mm)	74	74	74	84
E (mm)	577	647	803	830
F (mm)	617	694	843	780
G (mm)	12	12	15	15
H (mm)	6 (5)	6	8	10
ø I (mm)	8	10	10	12
MT.CIMA	5	6	8	10
L (mm)	150	150	160	146
M (mm)	180	180	210	238
N (mm)	77	88	103	104
O (mm)	50	50	50	100
P (mm)	260	260	290	400
Q (mm)	2500	2500	2500	1500
R	BMG 30T	BMG 30T	BMG 30T	BMG 52
HALYARD SWIVEL (Kg)	1,5	2	3	2
FOIL (Kg/m)	0,62	0,62	0,62	1,77
COIL DRIVE	5	6	12	18

S SAIL LENGTH (DEDUCT LASHINGS AND STRETCH)

* TO BE CUSTOMIZED

(A22) ELECTRIC INTERNAL MAINSAIL FURLER RGIEL

Mainsail furling mechanism to be fitted inside mast foils with special section for vertical internal mainsail furler. It is supplied with a motorization that replaces the manual "worm screw" coil drive. This solution allows you to reef, furl and unfurl the mainsail by pushing a switch from the cockpit. For information on the electric motorization, please refer to pages 27-28.

The electric internal mainsail furler kit is delivered in a long hard board box and includes:

- Furling foils and connectors
 - Halyard swivel
 - Terminal
 - Motorization
 - Anti-rotation bush
 - Screws
- + electric accessories (on page 46)

How to order the mainsail furler:

- Choose the mechanism depending on mast section and P measure.
- Check the boat's voltage

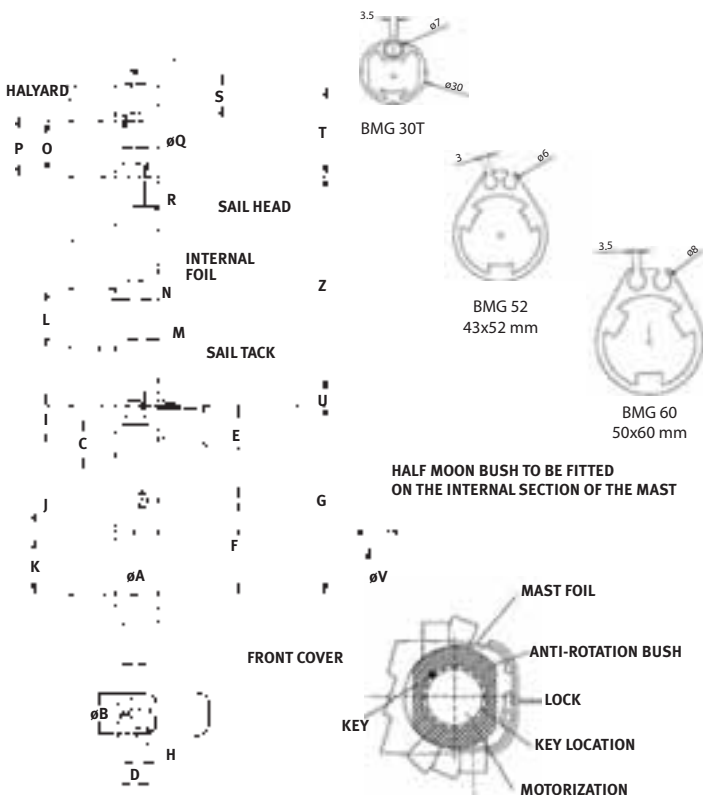
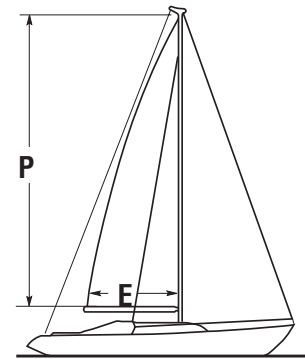
In the table below you will find the codes to help you place the order.

Codes to order **RGIEL**

MODEL	VOLTAGE	RGIEL 80	RGIEL 90	RGIEL 110	RGIEL 130	RGIEL 160
Max sail area (indicative) sq.m.		37	46	80	120	160
P MAX 15,0 m	12V	101318050001				
	24V	101318050002				
P MAX 17,5 m	12V		101318060001			
	24V		101318060002			
P MAX 20,0 m	12V			101318070001		
	24V			101318070002		
P MAX 25,0 m	12V				101319091701	
	24V				101319091702	
P MAX 30,0 m*	24V					101320172002

*Longer systems available on demand.

Please, check furling mast sections on page 131



MODEL	80	90	110	130	160
ø A (mm)	80	80	110	130	160
*ø B MIN (mm)	110/90**	110/90**	115/120**	197/140**	200/170**
C (mm)	70	80	100	110	130
D (mm)	85	85	120	140	170
E (mm)	275	275	337	450	520
F (mm)	295	295	323	330	355
G (mm)	570	570	660	780	875
H (mm)	23	23	33	33	33
I (mm)	73	73	73	84	100
J (mm)	40	40	40	50	50
K (mm)	185	185	195	220	200
L (mm)	2500	2500	2500	1500	1500
M (mm)	14	15	15	15	15
N (mm)	BMG 30T	BMG 30T	BMG 30T	BMG 52	BMG 60
O (mm)	150	150	160	146	165
P (mm)	180	180	210	238	258
Q (mm)	77	88	103	104	118
R (mm)	6	6	8	10	10
S (mm)	50	50	50	100	100
T (mm)	260	260	290	400	410
U (mm)	40	47	40	39	40
ø V (mm)	= ø B	= ø B	= ø B	= ø B	= ø B
HALYARD SWIVEL (Kg)	1,5	2	3	2	2,5
FOIL (Kg/m)	0,62	0,62	0,62	1,77	2,44
MOTORISATION (Kg)	9,5	11	13	35	55
Z (mm)					

SAIL LENGTH (DEDUCT LASHINGS AND STRETCH)

*TO BE CUSTOMIZED ** IF FITTED ON FRONT COVER

ELECTRIC MOTORIZATION FOR EXISTING MAINSAIL FURLERS

Bamar presents a range of motorizations that may replace the manual mechanisms on in-mast and external mainsail furlers made by Bamar and any other brand.

For information on the electric motorization, please refer to pages 27-28.
The electric mainsail motorization kit is made up by:

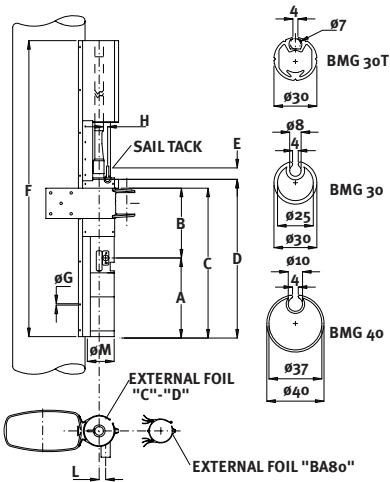
- Motorization
- Anchoring plate (only for Bamar models)
- Electric accessories (page 46)

Please, check furling mast sections on page 131.

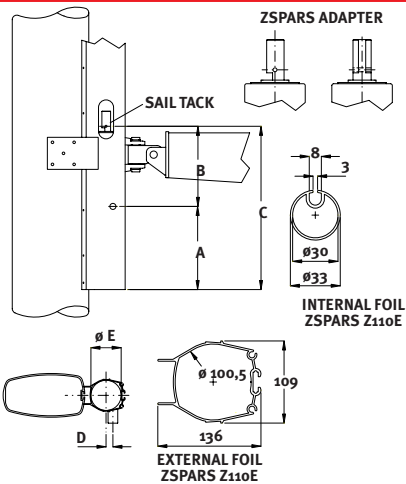
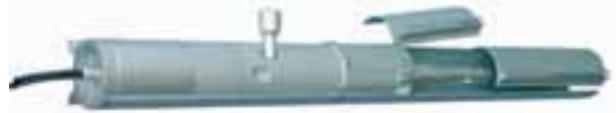
(A25) MOTORIZATION FOR EXTERNAL MAINSAIL FURLERS RRGEEL

HOW TO ORDER THE MOTORIZATION:

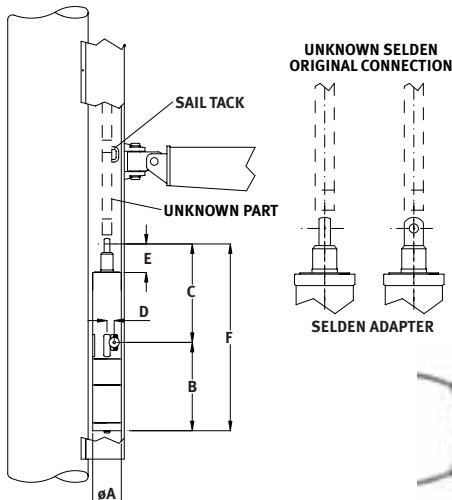
Choose the mechanism depending on the model of external mainsail furler fitted onboard.
In the table below you will find the codes to help you place the order:



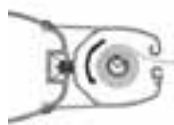
MANUAL MAINSAIL FURLER REFERENCE	VOLT	RRGEEL BA80	RRGEEL C	RRGEEL D
BAMAR	12 V 24 V	101402000001 101402000002	101403000001 101403000002	101404000001 101404000002
A (mm)		290	290	290
B (mm)		530	530	530
C (mm)		240	240	240
D (mm)		570	570	570
E (mm)		40	40	40
F (mm)		1045	1045	1045
ø G (mm)		5	5	5
H (mm)		14	14	14
L (mm)		23	23	23
ø M (mm)		80	90	105



MANUAL MAINSAIL FURLER REFERENCE	VOLT	RRGEEL Z 110 E
Z SPARS	12 V 24 V	101454000001 101454000002
A (mm)		290
B (mm)		265
C (mm)		555
D (mm)		23
ø E (mm)		100



MANUAL MAINSAIL FURLER REFERENCE	VOLT	RRGEEL 90	RRGEEL 108
SELDEN - FURLEX MAIN	12 V 24 V	101445300001 101445300002	101445320001 101445320002
A (mm)		290	290
B (mm)		240	240
C (mm)		530	530
D (mm)		570	570
E (mm)		40	40
F (mm)		1045	1045
ø G (mm)		5	5
H (mm)		14	14
L (mm)		23	23
ø M (mm)		620	620



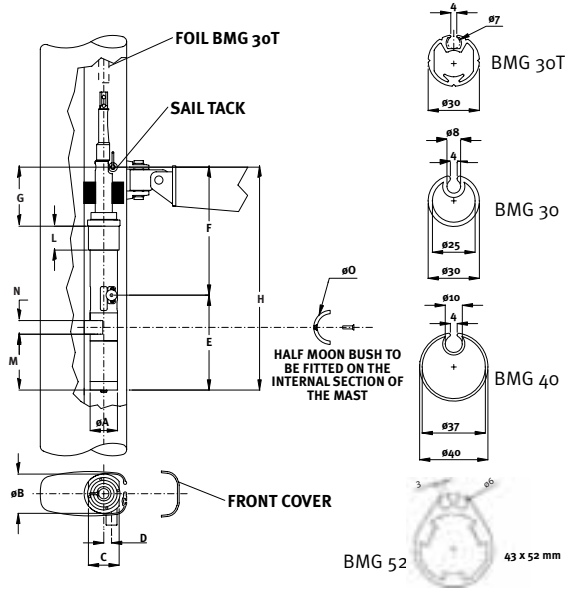
(A35) MOTORIZATION FOR IN-MAST MAINSAIL FURLER OF DIFFERENT BRANDS RRGIEL

Moreover, Bamar supplies mainsail motorizations to be fitted inside new built and/or existing furling masts. The system may be fitted both on existing Bamar masts, and on masts of different brands thanks to an application that allows you to customize fittings depending on the mast to be motorised.

- The kit includes:
- Motorization
 - Anti-rotation bearing
 - Threaded plate
 - Inner foil adapter
 - Front cover

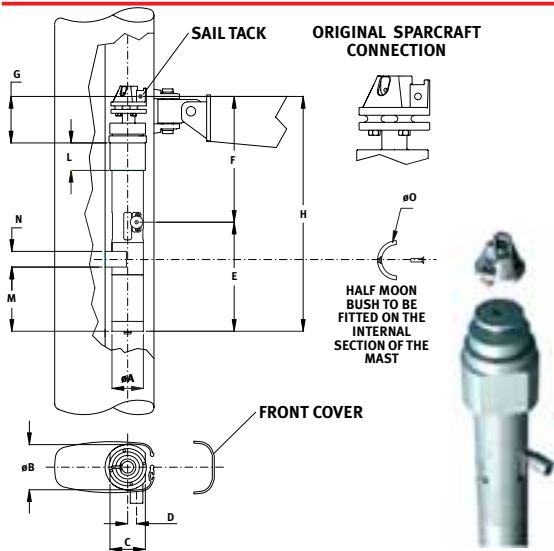
In the table below you will find the codes needed to place the order:

Please, check furling mast sections on page 131.



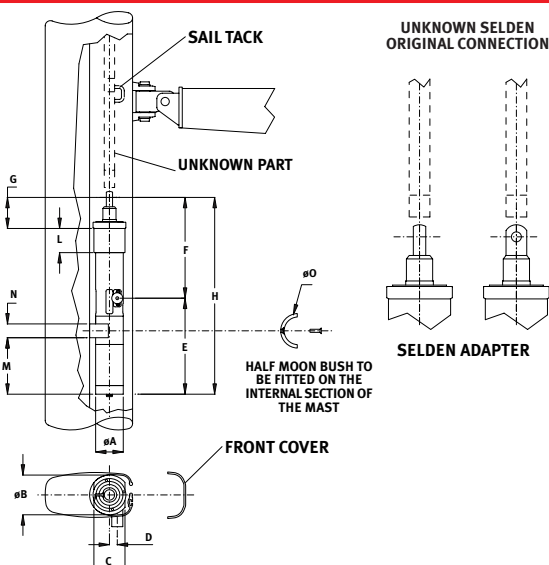
MAST SECTION	VOLT	RRGIEL 80	RRGIEL 110	RRGIEL 130
BAMAR BMR 70	12 V	101525040011		
	24 V	101525040012		
BAMAR BMR 100	12 V	101525060011		
	24 V	101525060012		
BAMAR BMR 125	12 V	101525080011		
	24 V	101525080012		
BAMAR BMR 140	12 V		101528100011	
	24 V		101528100012	
BAMAR BMR 165	12 V		101528120011	101529120011
	24 V		101528120012	101529120012
Ø A (mm)		80	110	130
* Ø B MIN (mm)		110/90**	145/120**	170/140**
C (mm)		100	120	140
D (mm)		23	33	33
E (mm)		295	323	330
F (mm)		375	437	450
G (mm)		173	173	84
H (mm)		670	760	780
L (mm)		70	100	110
M (mm)		185	195	220
N (mm)		40	40	50
Ø O (mm)		= Ø B	= Ø B	= Ø B
MOTORIZATION (Kg)		9,5	13	35

* TO BE CUSTOMIZED ** IF FITTED ON FRONT COVER



MAST SECTION	VOLT	RRGIEL 80	RRGIEL 110	RRGIEL 130
SPARCRAFT F 560E	12 V	101540060011		
	24 V	101540060012		
SPARCRAFT F 760E	12 V	101540080011		
	24 V	101540080012		
SPARCRAFT F 980E	12 V	101540100011		
	24 V	101540100012		
SPARCRAFT F1410E	12 V		101543120011	
	24 V		101543120012	
SPARCRAFT F1980E	12 V		101543140011	101538140011
	24 V		101543140012	101538140012
SPARCRAFT F2600E	12 V			101543160011
	24 V			101543160012
Ø A (mm)		80	110	130
* Ø B MIN (mm)		110/90**	145/120**	170/140**
C (mm)		100	120	140
D (mm)		23	33	33
E (mm)		295	323	330
F (mm)		331	393	450
G (mm)		130	130	84
H (mm)		626	716	780
L (mm)		70	100	110
M (mm)		185	195	220
N (mm)		40	40	50
Ø O (mm)		= Ø B	= Ø B	= Ø B
MOTORIZATION (Kg)		9,5	13	35

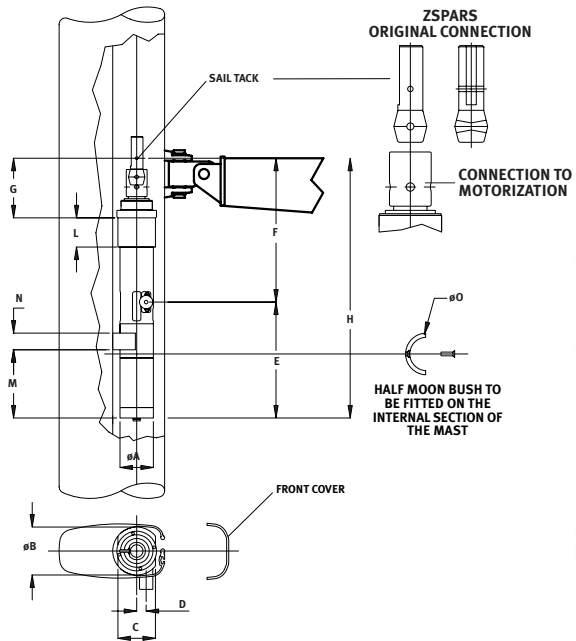
* TO BE CUSTOMIZED ** IF FITTED ON FRONT COVER



SEZIONE ALBERO	VOLT	RRGIEL 80	RRGIEL 110	RRGIEL 130	RRGIEL 160
SELDEN STANDARD	12 V	101545000011	101548000011	101544000011	
	24 V	101545000012	101548000012	101544000012	101549000012
Ø A (mm)		80	110	130	180
* Ø B MIN (mm)		110/90**	145/120**	170/140**	200/170**
C (mm)		100	120	140	170
D (mm)		23	33	33	33
E (mm)		295	323	330	355
F (mm)		325	387	450	520
G (mm)		123	123	*	*
H (mm)		620	710	780	875
L (mm)		70	100	110	130
M (mm)		185	195	220	200
N (mm)		40	40	50	50
Ø O (mm)		= Ø B	= Ø B	= Ø B	= Ø B
MOTORIZATION (Kg)		9,5	13	35	55

* TO BE CUSTOMIZED ** IF FITTED ON FRONT COVER

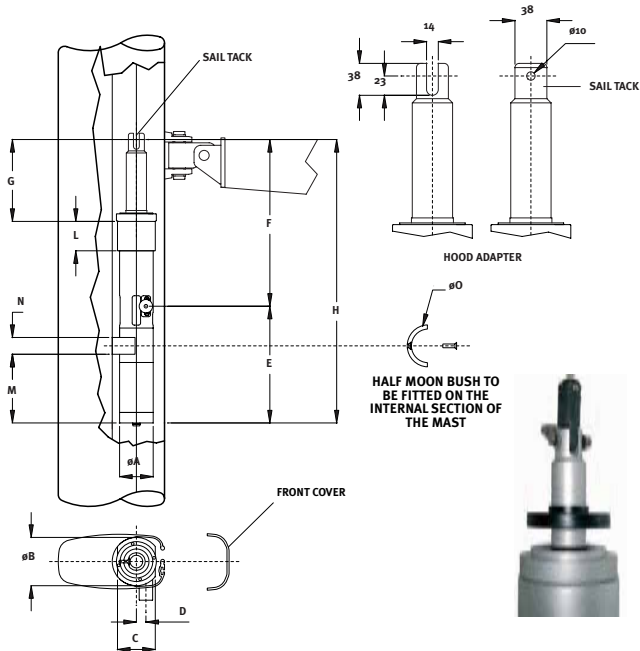




MAST SECTION	VOLT	RRGIEL 80	RRGIEL 110
Z SPARS Z 600E	12 V	101550040011	
	24 V	101550040012	
Z SPARS Z 700E	12 V	101550060011	
	24 V	101550060012	
Z SPARS Z 800E	12 V	101550080011	
	24 V	101550080012	
Z SPARS Z 900E	12 V	101550100011	
	24 V	101550100012	
Z SPARS Z 1100E	12 V		101553120011
	24 V		101553120012
Z SPARS Z 1400E	12 V		101553140011
	24 V		101553140012
$\varnothing A$ (mm)		80	110
* $\varnothing B$ MIN (mm)		110/90**	145/120**
C (mm)		100	120
D (mm)		23	33
E (mm)		295	323
F (mm)		345	407
G (mm)		143	143
H (mm)		640	730
L (mm)		70	100
M (mm)		185	195
N (mm)		40	40
$\varnothing O$ (mm)		= $\varnothing B$	= $\varnothing B$
MOTORIZATION (Kg)		9,5	13

* TO BE CUSTOMIZED

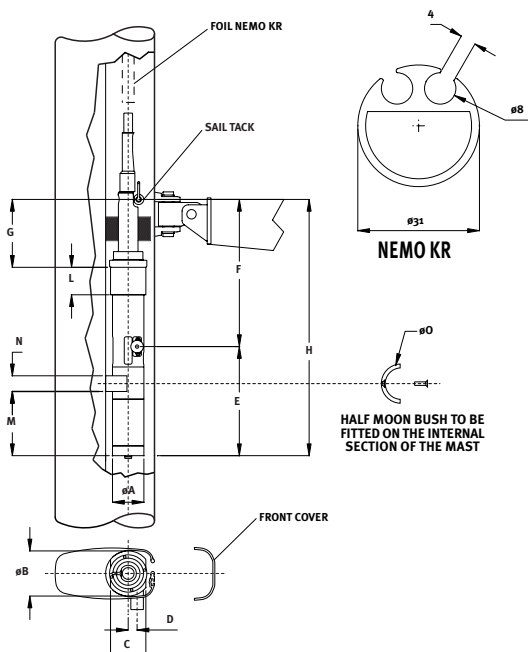
** IF FITTED ON FRONT COVER



MAST SECTION	VOLT	RRGIEL 80	RRGIEL 110	RRGIEL 130	RRGIEL 160
HOOD 8851	12 V	101560020011			
	24 V	101560020012			
HOOD 9553	12 V	101560040011			
	24 V	101560040012			
HOOD 1057/1157	12 V	101560060011			
	24 V	101560060012			
HOOD 1267/1367	12 V		101563010011		
	24 V		101563010012		
HOOD 1582/1882				101559070011	
				101559070012	
HOOD 1911/2211/2411	24 V				101564011012
$\varnothing A$ (mm)		80	110	130	160
* $\varnothing B$ MIN (mm)		110/90**	145/120**	170/140**	200/170**
C (mm)		100	120	140	170
D (mm)		23	33	33	33
E (mm)		295	323	330	355
F (mm)		390	454	450	520
G (mm)		195	195	*	*
H (mm)		690	775	780	875
L (mm)		70	100	110	130
M (mm)		185	195	220	200
N (mm)		40	40	50	50
$\varnothing O$ (mm)		= $\varnothing B$	= $\varnothing B$	= $\varnothing B$	= $\varnothing B$
MOTORIZATION (Kg)		9,5	13	35	55

* TO BE CUSTOMIZED

** IF FITTED ON FRONT COVER



MAST SECTION	VOLT	RRGIEL 80	RRGIEL 110	RRGIEL 130
NEMO NE 98	12 V	101565040011		
	24 V	101565040012		
NEMO NE 115	12 V	101565060011		
	24 V	101565060012		
NEMO NE 145	12 V		101568080011	
	24 V		101568080012	
NEMO NE 200	12 V		101568100011	101569100011
	24 V		101568100012	101569100012
$\varnothing A$ (mm)		80	110	130
* $\varnothing B$ MIN (mm)		110/90**	145/120**	170/140**
C (mm)		100	120	140
D (mm)		23	33	33
E (mm)		295	323	330
F (mm)		375	437	450
G (mm)		173	173	84
H (mm)		670	760	780
L (mm)		70	100	110
M (mm)		185	195	220
N (mm)		40	40	50
$\varnothing O$ (mm)		= $\varnothing B$	= $\varnothing B$	= $\varnothing B$
MOTORIZATION (Kg)		9,5	13	35

* TO BE CUSTOMIZED

** IF FITTED ON FRONT COVER

TECHNICAL CHARACTERISTICS OF THE NEW CYLINDRICAL MAINSAIL MOTORIZATIONS PRESENTED IN THE PREVIOUS PAGES OF THE CATALOGUE (SEE SECTIONS RGEEL, RGIEL, RRGEEL, RRGIEL)

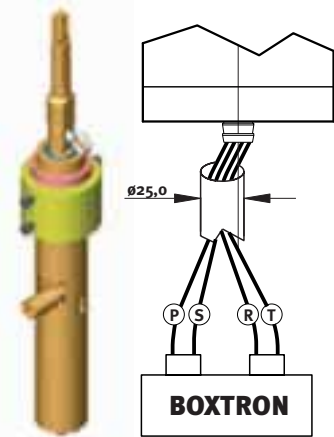
RGEEL = EXTERNAL ELECTRIC MAINSAIL FURLER

RGIEL = INTERNAL ELECTRIC MAINSAIL FURLER

RRGEEL = ELECTRIC MOTORIZATION FOR EXTERNAL MAINSAIL FURLER

RRGIEL = ELECTRIC MOTORIZATION FOR IN-MAST MAINSAIL FURLER

MOTORIZATION		80/90		110		130		160	
MAX MAINSAIL AREA (INDICATIVE)	m ²	40		80		120		160	
RPM		40		40		40		43	
WEIGHT	kg	9,5		13		35		55	
ELECTRIC CABLE OF BIPOLAR MOTOR	m	5		5		6		6	
ELECTRIC CABLE OF BIPOLAR BRAKE	m	5		5		6		6	
Ø 25 MM CABLE COAT	m	3,5		3,5		4,5		4,5	
VOLTAGE	volt	12	24	12	24	12	24	12	24
ELECTRIC POWER	watt	150		400		900		1500	
MAX LENGTH OF CABLES ON ELECTRIC PLANT		m		DIMENSION OF CABLES ON ELECTRIC PLANT SECTION		mm ²			
5	10	10	16	16	35	35	35	35	
10	10	10	16	16	36	35	35	35	
18	16	10	25	16	35	35	35	35	
25	16	10	25	16	35	35	35	35	
40	25	16	35	25	35	35	35	35	
FUSE / THERMAL MAGNET TO BE FITTED ON THE LINE	amp	50	25	100	50	160	120	160	160
"BOXTRON" ELECTRONIC CONTROL TO PROTECT THE MOTORIZATION	amp	06-60				35-150			



Motorization electric diagram
P and R = motorization electric cable
S and T = brake cable

BOXTRON is an essential accessory, as it protects not only the electric motor, but also the “complete furling system”: motorization, foils, connectors, halyard swivel, halyard, sail.

The main characteristics of “**BOXTRON**” are:

- Its “sensitivity” / its immediate “reaction time” (a standard thermal magnet would take more than a minute to intervene and protect the system).
- Guarantee of correct assembly of components. **BOXTRON** is pre-assembled, thus the installation of the electric plant is limited to the connection of six electric cables. (refer to page 46 for further information)

CONTROL OF MOTORIZATION

We suggest making the main electric connection with a switch and using the “radio” version as a secondary system.



ASSEMBLY OF ELECTRIC "CYLINDRICAL" MOTORIZATIONS FOR MAINSAIL FURLERS (RGIEL & RRGIEL)

The new electric cylindrical mainsail motorizations originate both from our past activity as spar makers, and from our long experience in the design and production of mainsail furling systems.

By creating these systems we have realized high performance and low consumption motorizations, and we have supplied the installer and/or spar maker with a furler that could be easy to install both on an existing mainsail furler, and on a new system.

This simplicity is guaranteed by the use of a fundamental element, the "Universal anti-rotation bush", which may be supplied in two versions: cylindrical or eccentric.

The bush is supplied with several internal grooves that are to be used to house the anti-rotation locking key. This device allows for the motorization to be easily positioned inside the mast foil, thus permitting the correct setting of the manual emergency clutch exit, in order to simplify the use of the handle in case of need.

EXAMPLE OF INSTALLATION OF THE MOTORIZATION INSIDE A FURLING MAST



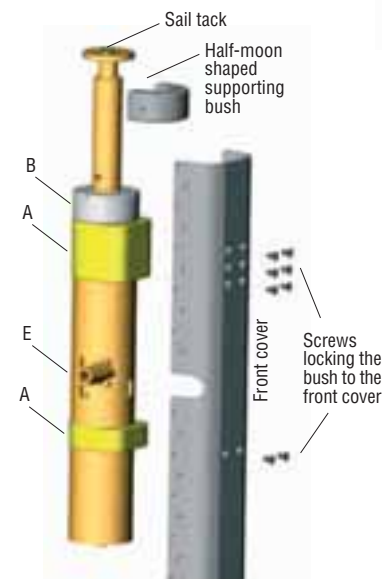
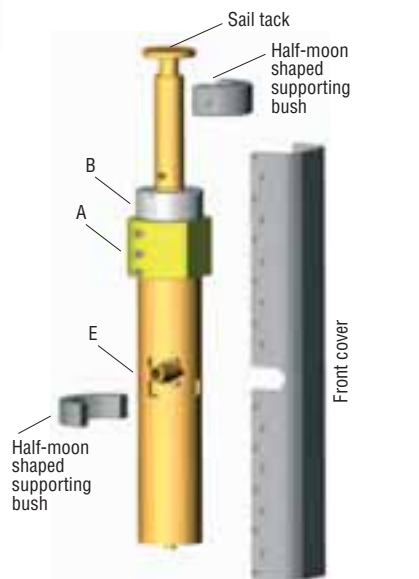
check the position of the motorization by making the sail tack shackle and the "BAD" coincide.

- 1) position the motorization complete with the locking bush A inside the mast
- 2) check the "BAD" (sail tack); mark the position of the bush A on the mast.
- 3) mark the position of the front cover which will protect the opening / motorization passage
- 4) mark the area where the manual emergency clutch will come out

When choosing the position of the emergency clutch, keep in mind the dimensions of external objects that may hinder the rotation of the handle (boom, winches, etc.)

2nd PHASE: secure the cylindrical bush inside the mast

- 5) cut the mast in order to create a passage for the motorization to go through. Such passage will then be protected by the external front cover supplied by A.R.T.E.-Bamar
- 6) position the pre-drilled front cover, drill and thread the mast.
- 7) position the bush A on the mast, drill the mast and thread the bush



2nd PHASE: secure the eccentric bush to the front cover

- 5) cut the mast in order to create a passage for the motorization to go through. Such passage will then be protected by the external front cover supplied by A.R.T.E.-Bamar
- 6) position the pre-drilled front cover, drill and thread the mast.
- 7) position the bushes A on the pre-drilled front cover.

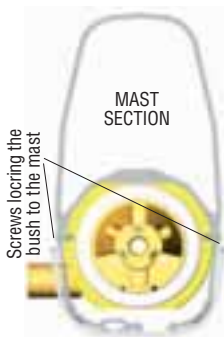
3rd PHASE:

position the emergency clutch

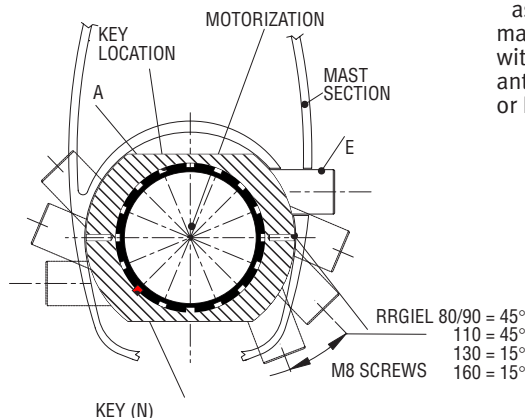
- 8) position the motorization inside the bush, rotate the motorization until the manual emergency clutch E is in the desired position

- 9) take off the motorization and the locking bush A from the mast.
- 10) assemble everything again: fit bush A, and ring B onto the motorization.

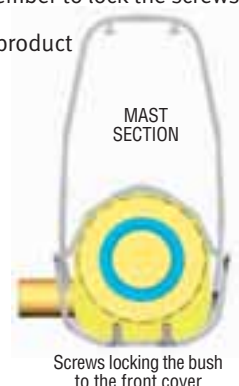
N.B.: the motorization has to be installed inside the mast only after the various components have been assembled. Make sure the screws locking the bush A to the mast are of the right length. Fit the front cover on the mast and remember to lock the screws with some anticorrosive product or Duralac.



4th PHASE: disassembling, cleaning and final installation



N.B.: the motorization has to be installed inside the mast only after the various components have been assembled. Fit the front cover on the mast and remember to lock the screws with some anticorrosive product or Duralac.



“COMBINED” MAINSAIL MOTORIZATION AND OUTHAUL

Bamar has been manufacturing motorizations for mainsail furlers and outhauls for over 20 years. Such motorizations make use of a worm screw as reduction system. Mainsail furlers and outhauls may be installed both on furling masts, and on new or existing external mainsail systems. The range of mainsail furlers and outhauls is composed by 5 + 5 models that may reef mainsails with a sail area between 30 and 240 sq.m. **THE ADVANTAGE OF THE OUTHAUL:** its function is to tension and lash the clew of the mainsail and to stow the stainless steel outhaul cable.

“Comby system” is the system that combines the mainsail motorization and the outhaul. It allows you to furl and unfurl the mainsail with the almost contemporaneous operation of the two motorizations.



(A50) ELECTRIC MAINSAIL MOTORIZATION V.S.F. (WORM GEAR) RGEL

It is made by a reduction gear with electric motor, adapter for furling foil, manual emergency clutch.

(A51) ELECTRIC OUTHAUL MOTORIZATION V.S.F. (WORM GEAR) TBEL

It is constituted by a reduction gear and line stowage system with electric motor, manual emergency clutch.

(A60) HYDRAULIC MAINSAIL MOTORIZATION V.S.F. (WORM GEAR) RGI

It is composed of a reduction gear with hydraulic motor, adapter for furling foil, manual emergency clutch.

(A61) HYDRAULIC OUTHAUL MOTORIZATION V.S.F. (WORM GEAR) TBI

It is made by a reduction gear and line stowage system with hydraulic motor, manual emergency clutch.

(A62) HYDRAULIC HOSES FOR RGI AND TBI MOTORIZATIONS

Kit made by: n.2 hydraulic flex hoses with stainless steel fittings

	RGI 35	RGI 65	RGI 95	RGI 150	RGI 240
Hose Type	3/8"	3/8"	3/8"	1/2"	1/2"
Length	5 m	6 m	8 m	9 m	9 M

(A65) FOIL KIT FOR MAINSAIL MOTORIZATIONS RGEL AND RGI

Kit made by foils, connectors, hoisting section, upper terminal, halyard swivel.

	RGI 35	RGI 65	RGI 95	RGI 150	RGI 240
P=	BMG30T	BMG30T	BMG52	BMG60	BMG80
Length	12.5 M	20.0 m	25.0 m	30.0 m	40.0 m

(A70) MOTOR SUPPORT PANEL FOR RGEL AND RGI

Panel milled and machined from aluminium alloy. It has the housing both for the screws that anchor the motorizations, and for the panel support to be fitted to the mast. Anodised finish.

(A72) PANEL SUPPORT TO BE WELDED

Support to be welded to the mast. In order to manufacture it, we need the production drawings and the section drawings (scale 1:1) of the mast.



Hydraulic outhaul 240



Support to be screwed to the mast. 52' Sailing Yacht



RGE + TBE 65



Support to be welded to the mast. 65' Sailing Yacht



Halyard swivel type "E" - BMG 52

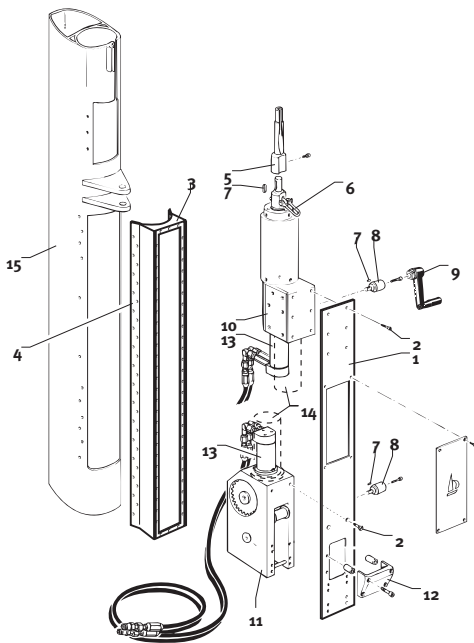
(A74) PANEL SUPPORT TO BE SCREWED

Support to be screwed to the mast. In order to manufacture it, we need the production drawings and the section drawings (scale 1:1) of the mast.

In the table below you will find the codes needed to place the order:

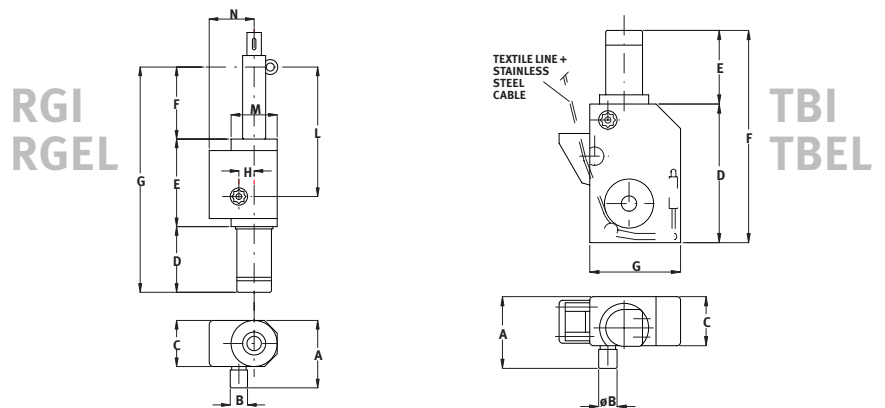
Codes to place the order

Max sail area (indicative) sq.m.		35	65	95	150	240
A50	RGEL 12v	10161000001	10161100001	10161200001		
	RGEL 24v	10161000002	10161100002	10161200002	10161300002	10161400002
A51	TBEL 12v	10200100000	10200200000	10200300000		
	TBEL 24v	10210100000	10210200000	10210300000	10210400000	10210500000
A60	RGI	10173000000	10173100000	10173200000	10173300000	10173400000
A61	TBI	10230100000	10230200000	10230300000	10230400000	10230500000
A62	hydraulic hoses	901020201	901020202	901020203	901020204	901020205
A65	furling foils kit	901020101	901020102	901020103	901020104	901020105
A70	motor support panel	901020401	901020402	901020403	901020404	901020405
A72	welded panel support	901020501	901020502	901020503	901020504	901020505
A74	screwed panel support	901020601	901020602	901020603	901020604	901020605



Pos. Description

1	Motor support panel
2	Screws to lock motors
3	Panel support (available either to be screwed on or to be welded)
4	Anchoring area on mast (to weld and/or to screw on)
5	Sail hoisting section
6	Sail tack
7	Key
8	Manual emergency clutch
9	Handle
10	Mainsail motorization (hydraulic and/or electric)
11	Outhaul (hydraulic and/or electric)
12	Outhaul guiding element
13	Hydraulic motors
14	Electric motors
15	Mast for in-mast RGI



WEIGHT AND DIMENSIONS

	RGI					TBI					RGEL					TBEL				
	35	65	95	150	240	35	65	95	150	240	35	65	95	150	240	35	65	95	150	240
A mm	117	145	177	250	270	117	147	177	250	270	117	145	177	250	270	117	147	177	250	270
B mm	30	30	30	35	35	30	30	30	35	35	30	30	30	35	35	300	30	30	35	35
C mm	80	110	140	160	180	80	110	140	160	180	80	110	140	160	180	80	110	140	160	180
D mm	120	125	125	178	178	225	290	355	440	520	275	230	253	275	275	225	290	355	440	520
E mm	156	165	178	248	278	120	125	125	180	180	156	165	178	248	278	275	230	252	275	275
F mm	125	230	230	300/600	300/1200	345	415	480	620	700	125	230	230	300/600	300/1200	500	520	607	715	905
G mm	391	520	533	n.d.	n.d.	148	180	215	265	340	556	625	661	n.d.	n.d.	148	180	215	265	350
H mm	26	45	50	n.d.	n.d.	--	--	--	--	--	26	45	50	n.d.	n.d.	--	--	--	--	--
L mm	225	340	360	n.d.	n.d.	--	--	--	--	--	225	340	360	n.d.	n.d.	--	--	--	--	--
M mm	80	100	130	150	150	--	--	--	--	--	80	100	130	150	150	--	--	--	--	--
N mm	78	95	118	160	180	--	--	--	--	--	78	95	118	160	180	--	--	--	--	--
Kg	7	12	25	52	80	8	15	26	65	90	10	16	33	65	98	11	18	34	78	108



*BAMAR foresail furlers are available in the manual,
electric and hydraulic versions.
They serve boats from 5 to over 60 m.*

FORESAIL FURLERS

FORESAIL FURLING SYSTEMS

MANUAL FORESAIL FURLER		PROD. ABBREVIATION	MODEL						
B10	Manuale "CROCIERA"	GFM	Co	CoT	C1	C2	C3	C4	
	WIRE STAY RANGE Ø mm		4-5-6-7	4-5-6-7	5-6-7-8	8-10	10-12	12-14	
	# ROD RANGE		-10	-10	-10	-17	-22	-30	
	FOIL SECTION:	BMG	30R	30R	30R	40R	40R	50R	
ELECTRIC FORESAIL FURLER		PROD. ABBREVIATION	MODEL						
B20	Magic Electric Jib	MEJ	1.02						
B21	Magic Electric Jib	MEJ		2.02					
B22	Magic Electric Jib	MEJ			3				
B23	Magic Electric Jib	MEJ				4			
	WIRE STAY RANGE Ø mm		8-10-12-14	14-16-19	19-22-25	25-28-32			
	# ROD RANGE		-17 -40	-48 -60	-60 -91	-91 -150			
	FOIL SECTION :	BMG	40R-50R-52	52-60-70	70-80-90	80-90-110			
	HOUSING OF STANDARD TURNBUCKLE		YES	YES	YES	YES			
ELECTRIC MOTORIZATION FOR EXISTING MANUAL FORESAIL FURLERS		PROD. ABBREVIATION	MODEL						
B30	Retrofit Magic Electric Jib	RMEJ	1.02						
B31	Retrofit Magic Electric Jib	RMEJ		2.02					
B32	Retrofit Magic Electric Jib	RMEJ			3				
B33	Retrofit Magic Electric Jib	RMEJ				4			
	WIRE STAY RANGE Ø mm		8-10-12-14	14-16-19	19-22-26	26-28-32			
	# ROD RANGE		-17 -40	-48 -60	-60 -91	-91 -150			
	HOUSING OF STANDARD TURNBUCKLE		YES	YES	YES	YES			
FOIL SECTIONS THAT MAY BE MOTORIZED									
	BAMAR OVAL (R) AND ROUND (T) SECTIONS	BMG R / T	30R-40R-50R / 30T-40T-50T						
	FACNOR	S/R/SX	S24-S38-S46 / R14-R24	SX48 / S54					
	FURLEX		B-C-D / 200S-300S-400S	D / 400S-500S					
	GOIOT		36-45	57					
	HAASE		3C-4C						
	HARKEN	UNIT	1,5-2-2,5-3-3,25-3,5	3,5	4-4,5				
	HOOD	SLUE / CC-DD-EE	800-900 / 3250-4880						
	NEMO	TR / C-CR / D-DR	TR31 / C-CR40 / D-DR45						
	PLASTIMO		1012T-1013T						
	PROFURL - BASIC, CLASSIC & ELITE	NC/LC/C/N/L/R/B	32-42-52 / 35	52-70					
	RECKMANN	R / RS	R1-2-3-4 / RS10-20-30-40	R4 / RS40					
	SCHAEFER		2100-3100-4100						
ELECTRIC FORESAIL FURLER		PROD. ABBREVIATION	MODEL						
B45	Electric Jib Furler	EJF	4						
	WIRE STAY RANGE Ø mm		14-16-19-22						
	# ROD RANGE		-40 -91						
	FOIL SECTION :	BMG	52-60-70-80						
	INTEGRATED TURNBUCKLE TO BE ADJUSTED WITH A WINCH HANDLE		YES						
ALUMINIUM HYDRAULIC FORESAIL FURLER		PROD. ABBREVIATION	MODEL						
B50	Hydraulic foresail furler	GFI	12	12 RACING					
B51	Hydraulic foresail furler	GFI			16				
B52	Hydraulic foresail furler	GFI				25			
B53	Hydraulic foresail furler	GFI					35		
B54	Hydraulic foresail furler	GFI						50	
B55	Hydraulic foresail furler	GFI						70	
	INTEGRATED MANUAL TURNBUCKLE	STANDARD	ST	ST	ST	ST	ST	ST	
B56	HYDRAULIC CYLINDER TO TENSION THE STAY	OPTIONAL	OP	OP	OP	OP	OP	ST	
	WIRE STAY RANGE Ø mm		8-10-12-14-16		16-19	22-26	26-28-32	36	
	# ROD RANGE		-10 -40	-48 -60	-40 -48	-60 -91	-115 -170	-170 -320	
	FOIL SECTION :	BMG	40R-50R-52	52-60	60-70	70-80-90	80-90-110	110-145-185	
								320-360-430	
								145-185	
S.S. HYDRAULIC FORESAIL FURLER		PROD. ABBREVIATION	MODEL						
B58	Hydraulic foresail furler	GFI	60						
B60	Hydraulic foresail furler	GFI		70					
B62	Hydraulic foresail furler	GFI			80				
	HYDRAULIC CYLINDER TO TENSION THE STAY	STANDARD	ST	ST	ST				
	# ROD RANGE		-260	-430	-540				
	FOIL SECTION:	BMG	145	185	225				
HYDRAULIC FORESAIL FURLER WITH SPHERICAL CONNECTION		PROD. ABBREVIATION	MODEL						
B65	Hydraulic foresail furler with spherical connection	GFSI	12						
B66	Hydraulic foresail furler with spherical connection	GFSI		16					
B67	Hydraulic foresail furler with spherical connection	GFSI			25				
B68	Hydraulic foresail furler with spherical connection	GFSI				35			
B69	Hydraulic foresail furler with spherical connection	GFSI					50		
B70	Hydraulic foresail furler with spherical connection	GFSI						70	
	INTEGRATED MANUAL TURNBUCKLE STANDARD	STANDARD	ST	ST	ST	ST	ST	ST	
B72	HYDRAULIC STAY TENSIONING CYLINDER OPTIONAL	OPTIONAL	OP	OP	OP	OP	ST	ST	
	# ROD RANGE		-17/-30/-40	-40/-48/-60	-60/-76/-91	-91/-115/-150/-170	-170/-260/-320	-320/-360/-430	
	FOIL SECTION:		40R/50R/52	60 or 70	70/80/90	90 or 110	110 or 145	145 or 185	
PLANETARY HYDRAULIC FORESAIL FURLER WITH SPHERICAL CONNECTION		PROD. ABBREVIATION	MODEL						
B75	Planetary hydraulic foresail furler with spherical connection	GFSIP	35C						
B76	Planetary hydraulic foresail furler with spherical connection	GFSIP		40C					
B77	Planetary hydraulic foresail furler with spherical connection	GFSIP			50C				
B78	Planetary hydraulic foresail furler with spherical connection	GFSIP				60C			
	# ROD RANGE		-91/-115/-150	-170/-195/-22	-260/-320	-360/-430/-540			
	FOIL SECTION:		90 or 110	110 or 145	145 or 185	185 or 225			
MANUAL ROLLGEN		PROD. ABBREVIATION	MODEL						
C10	Manual RollGen	RLG	08	10	20				
	Indicative max. sail area (sq.m.)		110	200	400				
	Max working load / stay tension (kg)		900	1500	2400				

Technical data and drawings are indicative and not binding

FORESAIL FURLING SYSTEMS

MANUAL RLG-CODE SYSTEM		PROD. ABBREVIATION	MODEL			
C12	Manual furler	RLG-CODE			30	40
	Indicative max. sail area (sq.m.)	RLG-CODE			700	1000
	Max working load / stay tension (kg)	RLG-CODE			4000/8000	6000/13000
ELECTRIC RLG-CODE SYSTEM		PROD. ABBREVIATION	MODEL			
C20	Electric furler, MEJ version	RLG-CODE		MEJ WL 5T 12-24V		
	Indicative max. sail area (sq.m.)	RLG-CODE		400		
	Max working load / stay tension (kg)	RLG-CODE		2400/5000		
ELECTRIC RLG-CODE SYSTEM		PROD. ABBREVIATION	MODEL			
C23	Electric furler with spheric connection	RLG-CODE		SE WL 5T 12-24V		
	Indicative max. sail area (sq.m.)	RLG-CODE		400		
	Max working load / stay tension (kg)	RLG-CODE		2400/5000		
HYDRAULIC RLG-CODE SYSTEM		PROD. ABBREVIATION	MODEL			
C30	Hydraulic furler with spheric connection	RLG-CODE		SI WL 10	SI WL 10/30°	SI WL 40
	Indicative max. sail area (sq.m.)	RLG-CODE		700	700	1000 (1500)
	Max working load / stay tension (kg)	RLG-CODE		4000 (6000)/10000	4000 (6000)/10000	6000/20000
						—
						—
ELECTRIC FURLER FOR GENNAKERS		PROD. ABBREVIATION	MODEL			
C40		BWS	200			

Technical data and drawings are indicative and not binding



(B10) MANUAL FORESAIL FURLER "CROCIERA"

The foresail furler "Crociere" makes use of all positive characteristics of previous BAMAR furling systems. This furling and reefing system is therefore simple and safe to use.

Comar 36' - Cantieri Comar



TELESCOPIC DRUM

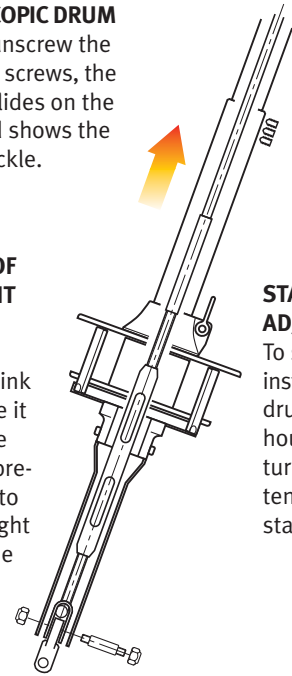
If you unscrew the locking screws, the drum slides on the foil and shows the turnbuckle.

ADJUSTMENT OF DRUM'S HEIGHT

The drum is supplied with stainless steel link plates that raise it above deck. The link plates are pre-drilled in order to adjust their height and allow for the passage of the anchor.

STAY LENGTH ADJUSTMENT

To simplify its installation, the drum may house a turnbuckle to tension the stay.



EASY INSTALLATION

Conceived to be easily installed with the use of simple tools, it is supplied with an instruction manual.



LOW FRICTION

The drum rotates on a double series of Delrin ball bearings that do not require lubrication and need minimal maintenance.

CORROSION FREE

The drum is made of anodised aluminium and stainless steel parts are isolated with a nylon film.

HALYARD SWIVEL

Made of extruded and anodised aluminium. It rotates on a double series of Delrin ball bearings that do not require lubrication and need minimal maintenance.

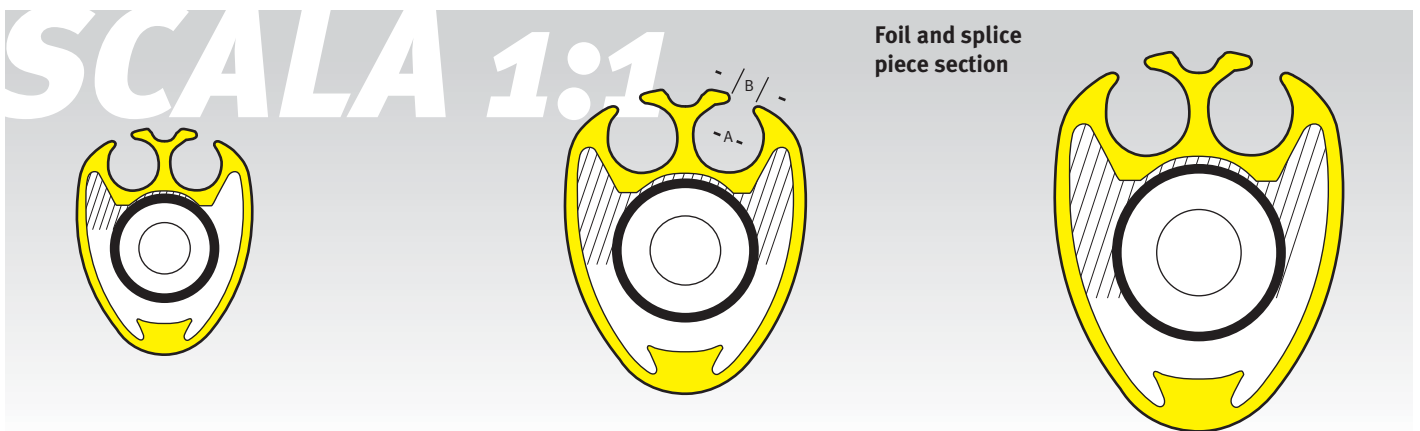
USE OF THE EXISTING STAY

The system may be installed on the original (existing) stay. You just need to disconnect it from the chain plate.



AERODYNAMIC FOILS

They are made of extruded anodised aluminium alloy. Their oval section offers a high aerodynamic performance. The foils are supplied with a double groove.



BMG 30 R

section	30x23 mm
sail groove	ø 7 mm
gap	3.5 mm
furler	Co / CoT / C1

BMG 40 R

section	40x32 mm
sail groove	ø 9 mm
gap	3.5 mm
furler	C2 / C3

BMG 50 R

section	50x38 mm
sail groove	ø 9 mm
gap	3.5 mm
furler	C4

SPLICE PIECES

The connection between two foil sections is made through an aluminium connector that has to be inserted inside the foils in order to grant a perfect alignment of the grooves.

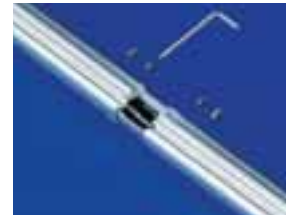
The splice pieces are supplied with a safety lock and are to be fitted with Allen screws. A sealing product has to be used in order to grant the locking of Allen screws for years.



"Co" fixed head

HIGH SLIDING

The half bearings are made of anti-friction material and insulate the connectors from the stay. They grant a high sliding when furling, thus making this furling and reefing system safer and easier to use.



Halyard swivel for "CoT" - C1 - C2 - C3 - C4

HALYARD RETAINER

Halyard retainer: it is supplied with the furler kit. It grants the furler good performance, and controls the halyard on top of the mast.

Application of the halyard swivel with halyard retainer block on models C1, C2, C3, and C4.

The CoT version is supplied with a halyard retainer bridge.

Application of fixed head with its halyard on model Co.



MATERIALS

Components are made of anodised aluminium type 6061-T6, and stainless steel.

In order to have the best mechanical resistance of materials, we use extruded aluminium machined with CNC machines.

Aluminium has a high resistance to UV rays. All plastic parts, ball bearings and half bearings are protected inside the mechanisms, thus granting a long life in salty environments with high UV rays concentration.

MAINTENANCE

It only requires to be washed with fresh water.

The manual foresail furler "Crociera" kit is delivered in strong hard board boxes and includes:

- furling drum
- hoisting foil
- middle foils
- terminal foil
- splice pieces
- halyard swivel with shackles
- fixed head (in the Co version)
- allen screws to lock splice pieces
- halyard retainer block with rivets
- fixed halyard retainer bridge in version Co/CoT
- grease tube
- loctite
- allen key



(B11) EXTRA ACCESSORIES FOR FORESAIL FURLER



STAINLESS STEEL PREFEEDER

It makes the installation of the sail easier. It may be anchored to the hoisting foil.

LINE AND BLOCK KIT

Bamar can supply a kit to direct the furling line to the cockpit. It is composed of fixed and rotating ball bearing blocks and textile furling line. The blocks fit pulpit and stanchions of 25 mm diameter.



KITCOMPOSITION

	Co	CoT	C1	C2	C3	C4
Fixed block for Ø 25 mm stanchion q.ty	1	1	2	3	4	4
Swivel block for Ø 25 mm stanchion q.ty	1	1	1	1	1	1
Furling line m		12	16	20	25	30
Furling line Ø mm		6	8	8	10	10

SPECIAL CLEVIS PIN



The furler's drum may be anchored to the chain plate with a standard bolt with nut (part of the supply).

Should this application not be possible, please ask for the special clevis pin, specifying its diameter (*refer to page 36 for measures*).

The position of the connection has to be chosen depending on:

- Anchor movement
- Safety while sailing: with a high sail you may look over the bow
- Possibility of housing a turnbuckle, after having checked its dimensions.

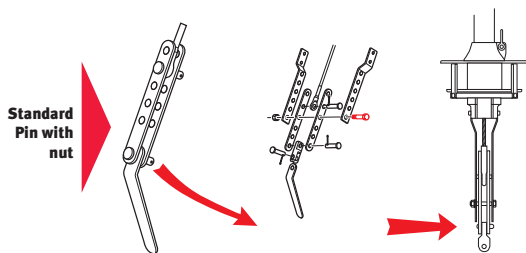
TOGGLE

To be installed on the existing forestay, should you decide to anchor the drum with the special clevis pin, and the existing turnbuckle cannot be disassembled in order to replace the pin between the turnbuckle and the toggle fork.

(see the table below)

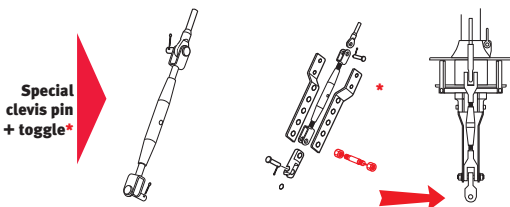


EXAMPLES OF APPLICATION



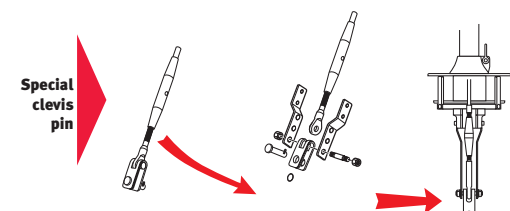
A

Application of original plates and locking of drum with "standard bolt with nut" supplied with the furler kit.



B

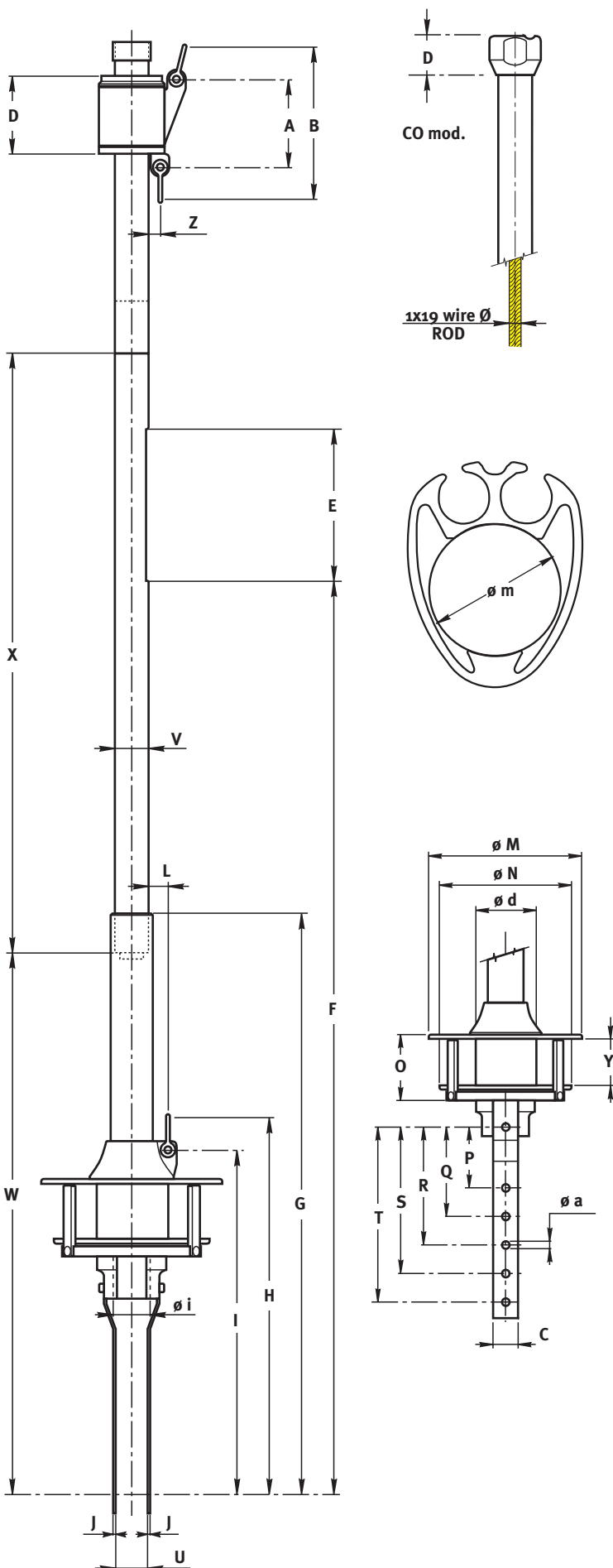
Application with original turnbuckle and locking with "special clevis pin" and eye-fork toggle



C

Application with original turnbuckle and locking with "special clevis pin" that replaces the existing pin

Technical data



Ref.	Co	CoT	C1	C2	C3	C4	
ROD #	*	-10	-10	-10	-17	-22	-30
1x19 wire Ø	**	4-7	4-7	5-8	8-10	10-12	12-14
Max sail area m ² (150%)		27	30	45	70	100	135
max LOA m		8	8.7	10.5	13	15.5	17.5
max LOA feet		26	29	35	43	51	56
A		-	104	104	110	110	110
B		-	168	168	185	185	185
C		25	25	30	35	40	40
D		40	88	88	93	98	98
E		120	120	120	180	180	180
F		860	860	990	1080	1170	1170
G		455	455	600	700	790	790
H		340	340	400	445	490	500
I		300	300	360	410	450	450
J		2.5	2.5	3.0	3.0	4.0	4.0
L		15	15	20	30	32	32
Ø M		130	130	178	220	270	270
Ø N		110	110	153	200	250	250
O		97	97	93	94	103	103
P		70	70	75	85	90	90
Q		100	100	110	125	135	135
R		130	130	145	165	180	180
S		160	160	180	205	225	225
T		190	190	215	245	270	270
U		30	30	30	38	50	50
V		30	30	30	40	40	50
W		370	370	510	610	700	700
X		750	750	750	750	750	750
Y		27	27	58	65	75	75
Z		15	15	20	23	25	25
Ø a		8	8	8	10	12	12
Ø d		60	60	78	90	100	100
Ø i		30	30	35	45	55	55
Ø m		13	13	13	23	23	30
Swivel kg		0.30	0.50	0.55	0.60	0.92	0.98
Foil kg		0.66	0.66	0.66	0.92	0.92	1.32
Drum kg		1.95	1.95	2.70	3.70	5.40	5.50

* check whether the eye terminal can be disassembled in order to have the stay pass through the foils (see Ø m)

** if the stay lower connection is supplied with a standard threaded swage terminal, it will be easy to have this element slide inside the furler's foils. On the contrary, should the stay have a bigger terminal, you need to check that its dimensions are not bigger than the internal diameter of the foils. In such case you will need to replace the terminal with a Sta-lok type of terminal (see 48).

HOW TO ORDER

Six different models of manual furlers are available. They can be installed on the existing stay.

Choosing the right model for your boat is very easy:

Determine the model depending on the stay diameter, foresail area and boat length.

Make sure the stay's lower connection is fitted with a standard threaded swage terminal that may slide inside the furler's foils. Should the stay be fitted with a swage eye terminal, you have to replace it with a Stalok-type of terminal. This may be installed without special tools: you just require nippers, a pair of pliers, and a key. You need to know the exact length of the forestay from the pin centre on top of the mast to the pin centre on the chain plate. You also have to identify the type of stay: e.g. wire or rod.

Choose the extra accessories to complete the system.

On the table below you will find the codes to place the order:

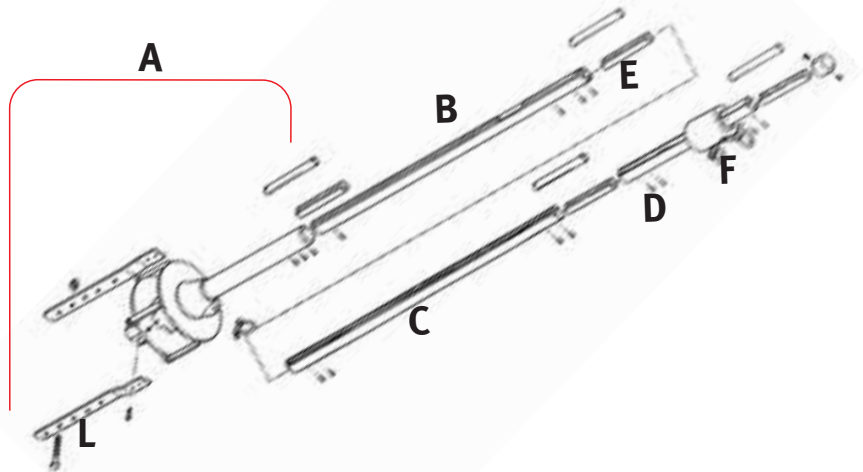
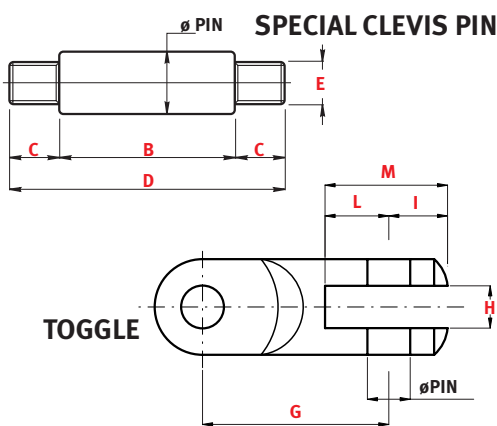
STAY Length m	Co	CoT	C1	C2	C3	C4
4.5	110001000502					
6.0	110001000503	110002000503				
7.5	110001000504	110002000504				
9.0	110001000505	110002000505	110003000505			
10.5	110001000506	110002000506	110003000506			
12.0			110003000507	110004001507		
13.5			110003000508	110004001508		
15.0			110003000509	110004001509	110005001509	
16.5				110004001510	110005001510	110006002510
18.0				110004001511	110005001511	110006002511
19.5					110005001512	110006002512
21.0					110005001513	110006002513
22.5						110006002514
PREFEEDER	901040000	901040000	901040000	901040001	901040001	901040001
LINE AND BLOCK KIT	901100101	901100102	901100103	901100104	901100105	901100106
FIXED BLOCK FOR Ø 25 mm STANCHION	901100301	901100301	901100301	901100301	901100301	901100301
SWIVEL BLOCK FOR Ø 25 mm STANCHION	901100302	901100302	901100303	901100303	901100304	901100304

SPECIAL CLEVIS PIN

B	C	D	Ø E	Ø PIN mm	Ø WIRE mm				
30	11	52	M8	7.9	4-5	901100505	901100505	901100505	
30/36	11/15	52/66	M8/M10	10.8	6-7	901100510	901100510	901100510	901100610
36	15	66	M10	12.5	8			901100515	901100615
36	15	66	M10	14.8	10				901100620
36/50	15/19	66/88	M10/M12	15.6	10				901100625
50	19	88	M12	18.5	12				901100725
50	19	88	M12	21.5	14				901100730
									901100735

TOGGLE

G	H	I	L	M	Ø PIN mm	Ø WIRE mm			
28	6,3	9	10	19	6.2	4	209050401	209050401	209050401
38	8,0	9,5	13,5	23	7.9	5	209050501	209050501	209050501
44	9,5	12	18	30	9.4	6	209050601	209050601	209050601
58	11,2	16	24	40	10.9	7	209050701	209050701	209050701
68	12,7	20	27	47	12.6	8			209050801
70	16,0	23	29	52	15.6	10			209051001
82	19,1	27	35	62	18.5	12			209051201
103	22,2	32	38	70	21.5	14			209051401



(B19) SPARES

Bamar supplies the following spares for the manual foresail furler "Crociera":

Rif.	Descrizione	Co	CoT	C1	C2	C3	C4
A	COMPLETE DRUM KIT WITH LINK PLATES AND HOISTING FOIL	901102501	901102502	901102503	901102504	901102505	901102506
B	HOISTING FOIL	901101805	901101805	901101805	901101815	901101815	901101825
C	MIDDLE FOIL	901101905	901101905	901101905	901101915	901101915	901101925
D	TERMINAL FOIL		901102005	901102005	901102015	901102015	901102025
E	SPLICE PIECE	901102205	901102205	901102205	901102215	901102215	901102225
F	HALYARD SWIVEL (DELTRIN BALL BEARINGS)		901101602	901101603			
F	HALYARD SWIVEL (TORLON BALL BEARINGS)				901101708	901101710	901101709
	FIXED HEAD WITH INTEGRATED PULLEY	901101501					
	HALYARD RETAINER BRIDGE		901100200				
	HALYARD RETAINER BLOCK (KIT)			901100201	901100201	901100202	901100202
	Ø 10 MM DELTRIN BALL BEARINGS FOR DRUM	205012001	205012001	205012001	205012001	205012001	205012001
	Ø 6.35 MM DELTRIN BALL BEARINGS FOR H.SWIVEL		205011001	205011001	205011001	205011001	205011001
	Ø 6.35 MM TORLON BALL BEARINGS FOR H.SWIVEL		205021001	205021001	205021001	205021001	205021001
L	LINK PLATES standard length	901102401	901102401	901102402	90110243	901102405	901102406
	LINK PLATES SPECIAL length 90 mm		901102410				

(B20-B21) ELECTRIC FORESAIL FURLING SYSTEM "ME1.02-MEJ2.02"

DAME
DESIGN - BUILD - SERVICE

Bamar electric foresail furling and reefing system with stainless steel cover is available in two models: MEJ1.02 (for stays with diameter from 8 to 14 mm) and MEJ2.02 (for stays with diameter from 14 to 19 mm). The motorization is supplied with new aluminium furling foils.

EASY TO INSTALL

The unit has been designed and manufactured to make fitting easy, with the help of simple tools. A complete instruction manual is supplied.

SIMPLE TO USE

You furl it from the cockpit: just push the button placed on the console

CORROSION RESISTANT

The MEJ is made of "HARDCOTE" anodised aluminium. Stainless steel parts are insulated with nylon.

If you take out the locking screws, the motorization slides on the foil and shows the turnbuckle



HALYARD SWIVEL

It is manufactured from anodised aluminium and rotates smoothly and freely on its own double series of Torlon ball bearings. These ball bearings do not require lubrication and need little maintenance.

SAIL Tack height.

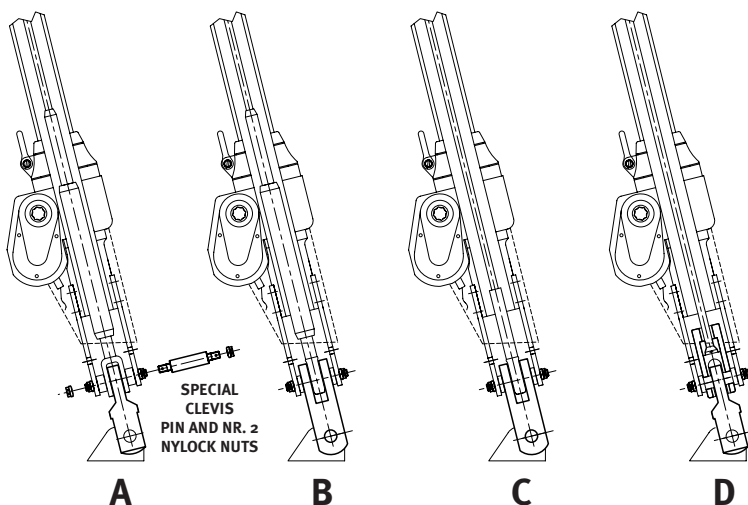
The link plates, that adjust the height of the MEJ, may be cut to measure in order modify the height of the tack.

FAILSAFE OPERATION

In the event of a total failure of the boat's electrical system, the unit can be manually operated, by inserting a standard winch handle in the manual emergency clutch.

USE OF THE EXISTING STAY

The motorization is hollow inside, thus allowing the use of the existing stay and the housing of a turnbuckle. You do not need to take off the stay from the boat, as you may install the furler on armed mast, by disconnecting the stay from the chain plate (in some cases, you will need the installation of extra accessories for the modification of the stay – please refer to the scheme below and to page 48 for the order).



A

B

C

D

SPECIAL
CLEVIS
PIN AND NR. 2
NYLOCK NUTS



MEJ RATIO MOTOR

The worm gear ensures a safe mechanical lock when the sail is reefed. The gear is permanently lubricated, therefore it needs little maintenance. The high precision machining ensures quiet operation. It may indifferently operate clockwise or anti-clockwise.

HEIGHT ADJUSTMENT

The unit is supplied with stainless steel link plates that raise the motorization from deck. These link plates are pre-drilled in order to facilitate height adjustment and make the passage of the anchor easy.

N.B.: when you anchor the motorization to the chain-plate you have to make use of a bar toggle (eye-fork or fork-fork toggle). In fact, the toggle is an important anti-rotation element when the sail is reefed.

- Use of an eye-fork toggle and special clevis pin to anchor a stay with a turnbuckle and fork terminal
- Use of a fork-fork toggle and special clevis pin to anchor a stay with a turnbuckle and eye terminal
- Use of a fork-fork toggle and special clevis pin to anchor a stay with an eye terminal
- Use of a "rod adapter" to anchor a rod stay.

39

ominated 2001



CONNECTORS

Foil sections BMG40R and BMG50R are joined by solid aluminium connectors. This system provides for proper alignment of grooves. The connectors are provided with a safety pin and are locked into position by Allen screws. You have to use a sealing product in order to permanently lock the allen screws.

Foil sections BMG52 and BMG60 and BMG70 are joined together thanks to special split aluminium connectors and to Delrin half bearings (please refer to section “Foil with expanding openable connector” on page 61-62 for further information)

SMOOTH OPERATION

Half bearings are made of anti-friction material and insulate connectors from the stay. Moreover they grant a smooth operation, thus making this furling and reefing system safer and simpler to use.

HALYARD RETAINER

Each MEJ1.02 unit is supplied with an halyard retainer to control the halyard on mast head.

MATERIALS

Most components are machined from aluminium type 6061-T6, protected by hardcote anodising, and some parts are made of stainless steel. In order to get the best mechanical resistance of materials, we use extruded aluminium to be machined with CNC machines. Aluminium has a high coefficient of resistance to UV rays. All plastic materials, ball bearings and bushes, are protected inside the mechanism, thus granting a long life in salty environments subject to high UV rays concentration.

12 OR 24 VOLT POWER

The motorization has a low absorption and does not need extra batteries. For example, to furl a genoa, the MEJ1.02 uses about the same amount of power as a 25W bulb lit for half an hour.

MAINTENANCE

HOW TO PLACE AN ORDER

1. determine the model depending on the stay diameter and length, foresail area, boat length, voltage.
2. choose the accessories needed to modify the stay (please refer to section (B42) STAY MODIFICATION ACCESSORIES on page 48).
3. equip yourself with the tools needed to modify the stay (a pair of pliers, cutting nippers and an adjustable spanner).
4. choose the kind of electric plant you want to install (please refer to (B40) MAIN ACCESSORIES FOR ELECTRIC PLANT on page 46)

It just needs to be rinsed with fresh water. The electric foresail furler “MEJ” kit is delivered in strong hard board and/or wooden boxes and includes:

- electric motorization
- tack adapter
- hoisting foil
- middle foils
- connectors
- halyard swivel with shackles
- allen screws to lock connectors
- halyard retainer block with rivets (for MeJ1.02 only)
- grease tube
- sealing liquid
- allen key

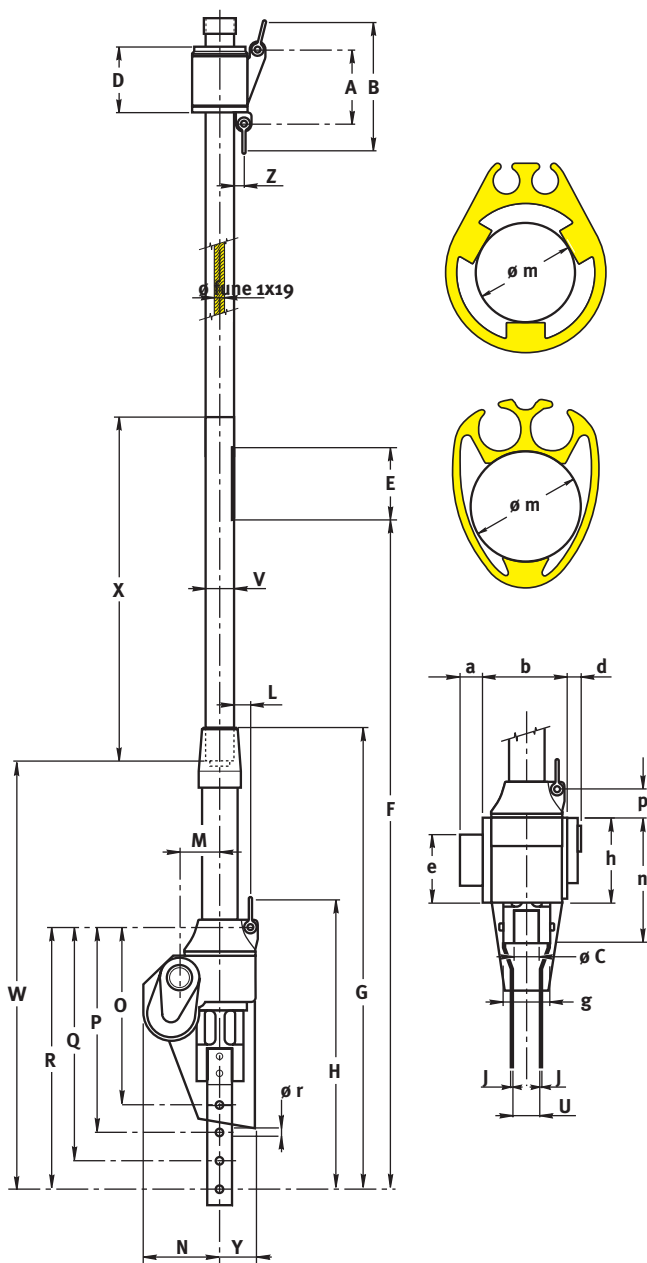


AMEL 54 - cantiere Amel - courtesy GdV

B20 VOLTAGE	MEJ1.02							
	12V				24V			
FOIL SECTION	BMG40R	BMG50R		BMG52	BMG40R	BMG50R		BMG52
STAY DIAMETER mm	10	12	14	14	10	12	14	14
ROD #	-17	-22	-30	-40	-17	-22	-30	-40
STAY LENGTH m								
13.5	110151101508				110251101508			
15.0	110151101509				110251101509	110251122509		
16.5	110151101510	110151122510			110251101510	110251122510		
18.0	110151101511	110151122511	110151142511	110151142611	110251101511	110251122511	110251142511	110251142611
19.5		110151122512	110151142512	110151142612		110251122512	110251142512	110251142612
21.0		110151122513	110151142513	110151142613		110251122513	110251142513	110251142613
22.5		110151122514	110151142514	110151142614		110251122514	110251142514	110251142614
24.0				110151142615				110151142615

B21 VOLTAGE	MEJ2.02			
	24V			
FOIL SECTION	BMG52	BMG60	BMG70	
STAY DIAMETER mm	14	16	19	19
ROD #	-40	-48	-60	-60
STAY LENGTH m				
15.0				
16.5				
18.0				
19.5				
21.0				
22.5	110252142614			
24.0		110252163015		
25.5		110252163016		110252193016
27.0			110252193017	
28.5			110252193018	
30.0				110252193518 110252193519

Technical data

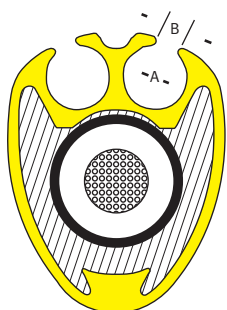


	MEJ 1.02				MEJ 2.02		
ROD# (*)	-17	-22	-30	-40	-40	-48	-60
1x19 wire Ø (**)	8-10	12	14	14	14	16	19
Max sail area (150%) m ²	70	80	90	100	120	140	160
max LOA m	12	14	15	16.5	18	20	22
Øm mm	23	30	30	29	29	30	40
A	110	115	115	115	171.5	191.5	230.5
B	185	190	190	190	250	280	320
Ø C	52	52	52	52	65	65	65
D	93	100	100	100	145	165	197
E	180	180	180	110	110	110	110
F	1300	1300	1300	1800	1894	2044	2044
G	910	910	910	910	1164	1164	1164
H	500	500	500	500	716	716	716
J	4.0	5.0	8.0	8.0	10	10	10
L	47	42	42	40	53.5	50	45
M	63.5	63.5	63.5	63.5	84	84	84
N	135	135	135	135	202	202	202
O	279	279	279	279	447	447	447
P	370	370	370	370	507	507	507
Q	415	415	415	415	567	567	567
R	460	460	460	460	627	627	627
U	45	45	65	65	89	89	89
V	40	50	50	52	52	60	70
W	810	810	810	810	1044	1044	1044
X	750	750	750	1500	1500	1500	1500
Y	62.5	62.5	62.5	62.5	80	80	80
Z	30	25	25	25	14	15	18
a	45	45	45	45	20	20	20
b	125	125	125	125	165	165	165
d	35	35	35	35	43	43	43
e	105	105	105	105	271	271	271
g	75	75	75	75	105	105	105
h	165	165	165	165	196.5	196.5	196.5
Ø r	12	12	12	12	20	20	20
n	235	235	235	235	326	326	326
p	50	50	50	50	60.5	60.5	60.5
Swivel kg	0.60	0.98	0.98	1.0	2.0	2.7	5.2
Foil kg/m	0.92	1.32	1.32	1.77	1.77	2.44	2.77
Motorization kg	11	11	11.5	12.5	29	29	29
Foil	BMG40R	BMG50R	BMG50R	BMG52	BMG52	BMG60	BMG70

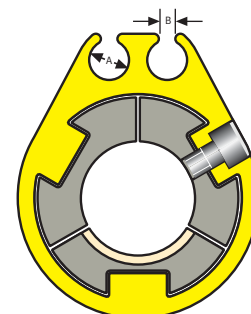
Motorization technical characteristics		MEJ 1.02	MEJ 2.02
Max speed	RPM	40	40
Electric supply	V	12-24	24
Electric motor power	W	400	900
Nominal absorption	A	42-22	45
Usage with reefed sail		YES	YES
Max couple on foil	Nm	110	240

* check whether the eye terminal can be disassembled in order to have the stay pass through the foils (see Ø m)

** if the stay lower connection is supplied with a standard threaded swage terminal, it will be easy to have this element slide inside the furler's foils. On the contrary, should the stay have a bigger terminal, you need to check that its dimensions are not bigger than the internal diameter of the foils. In such case you will need to replace the terminal with a Stalok-type of terminal (please refer to page 48).



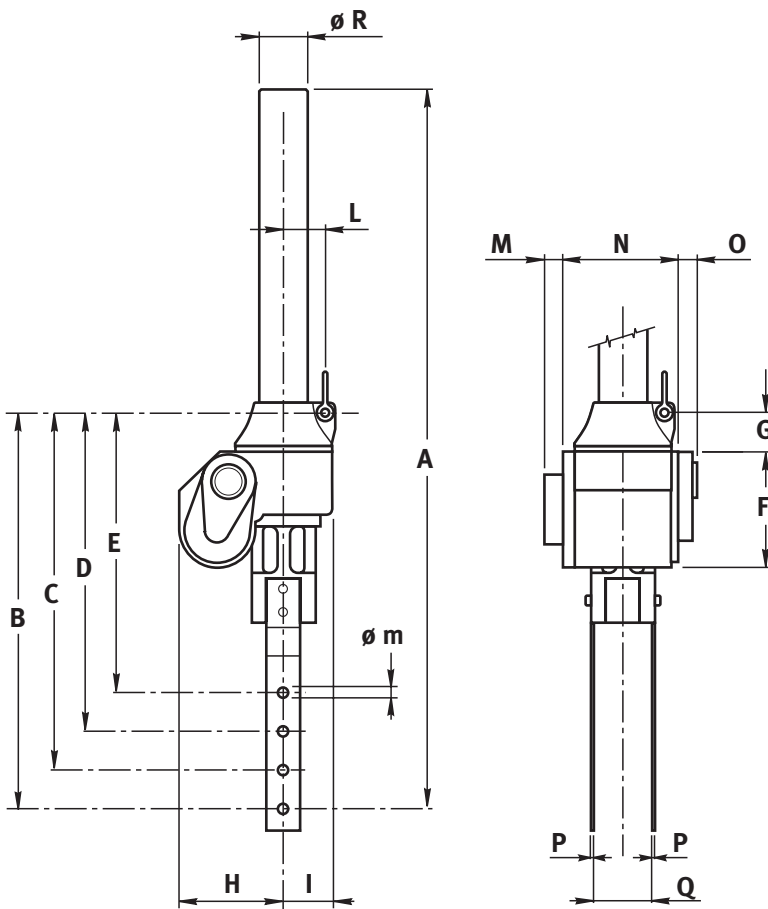
Foil and splice piece section



BMG 40R			BMG 50R			BMG 52			BMG 60			BMG 70		
section	mm	40x32	section	mm	50x38	section	mm	43x52	section	mm	50x60	section	mm	60x70
sail groove	mm	Ø 9	sail groove	mm	Ø 9	sail groove	mm	Ø 6	sail groove	mm	Ø 8	sail groove	mm	Ø 8
gap (B)	mm	3.5	gap	mm	3.5	gap	mm	3	gap	mm	3.5	gap	mm	3.5

(B22-B23) ELECTRIC FORESAIL FURLER “MEJ3-MEJ4”

We have a line of foresail furlers with anodised aluminium body that were designed for boats with either 1x19 wire stays from 19 mm diameter and over, or rod stays # 60 and above.



Motorization technical characteristics		MEJ3	MEJ4
Max speed	RPM	40	40
Electric supply	V	24	24
Electric motor power	W	1200	1500
Nominal absorption	A	60	75
Usage with reefed sail		YES	YES
Max couple on foil	Nm	330	420

Technical data	MEJ3	MEJ4
A	mm 1157	1299
B	mm 664.5	754.5
C	mm 604.5	694.5
D	mm 544.5	634.5
E	mm 484.5	574.5
F	mm 196	236
G	mm 70.5	66.5
H	mm 213.5	229
I	mm 95	115
L	mm 84	108
M	mm 20	20
N	mm 190	230
O	mm 43	43
P	mm 10	12
Q	mm 110	141
ø R	mm 85	105
ø m	mm 20	25

HOW TO PLACE AN ORDER

1. determine the model depending on the stay diameter and length, foresail area, boat length, voltage.
2. choose the accessories needed to modify the stay (please refer to section (B42) STAY MODIFICATION ACCESSORIES on page 48).
3. equip yourself with the tools needed to modify the stay (a pair of pliers, cutting nippers and an adjustable spanner).
4. choose the kind of electric plant you want to install (please refer to (B40) MAIN ACCESSORIES FOR ELECTRIC PLANT on page 46)

B22-B23

FOIL SECTION	MEJ3 24V					MEJ4 24V			
	BMG70		BMG80		BMG90	BMG80	BMG90	BMG110	
STAY DIAMETER mm	16	19	22	26	28	28	28	28	32
ROD #	-53	-60		-76		-91	-91	-91	-115
STAY LENGTH m									
	25.5	110203193516							
	27.0		110203193517			110203264508			
	28.5		110203193518						
	30.0		110203193519	110203194009					
	33.0			110203224010					
	36.0				110203224011	110203264511			
	39.0				110203224012	110203284512			
	42.0					110203284513	110204284013	110204284513	110204285513
	45.0								110204285514
	48.0								110204325515

(B30-B31-B32-B33)

RMEJ UNIVERSAL ELECTRIC MOTORIZATION FOR MANUAL FORESAIL FURLERS

Apart from the electric foresail furlers complete with foils, Bamar presents a line of electric motorizations to replace the drum on all existing manual furlers.

We have four models with different looks: models RMEJ1.02 and RMEJ2.02 are made of a hardcote anodised aluminium body with a stainless steel cover. Models RMEJ3 and RMEJ4 keep the original looks with black and silver anodised aluminium body.

CORROSION RESISTANT

The MEJ is made of "HARDCOTE" anodised aluminium. stainless steel parts are insulated with nylon.

MATERIALS

Most components are machined from aluminium type 6061-T6, protected by hardcote anodising, and some parts are made of stainless steel.

In order to get the best mechanical resistance of materials, we use extruded aluminium to be machined with CNC machines. Aluminium has a high coefficient of resistance to UV rays. All plastic materials, ball bearings and bushes, are protected inside the mechanism, thus granting a long life in salty environments subject to high UV rays concentration.

VERSATILITY

By means of an "ADAPTER", the motorization may be fitted on all models of manual furlers available on the market. You just need to take off the manual drum and replace it with the "RMEJ" motorization. By keeping the original foils and halyard swivel you save money, as you do not need labour to take them off.

SAIL Tack height.

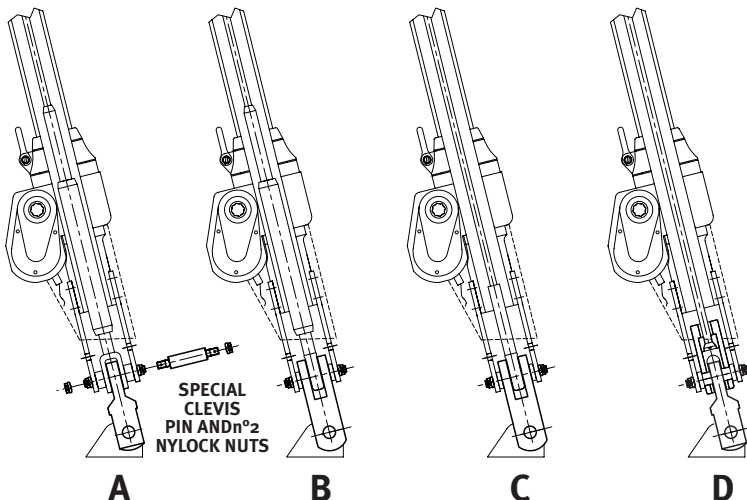
The link plates, that adjust the height of the MEJ, may be cut to measure in order to modify the height of the tack.

FAILSAFE OPERATION

In the event of a total failure of the boat's electrical system, the unit can be manually operated, by inserting a standard winch handle in the manual emergency clutch.

USE OF THE EXISTING STAY

The motorization is hollow inside, thus allowing the use of the existing stay and the housing of a turnbuckle. You do not need to take off the stay from the boat, as you may install the furler on armed mast, by disconnecting the stay from the chain plate (in some cases, you will need the installation of extra accessories for the modification of the stay – please refer to the scheme below and to page 48 for the order).



EASY TO INSTALL

The unit has been designed and manufactured to make fitting easy, with the help of simple tools. A complete instruction manual is supplied.

SIMPLE TO USE

You furl it from the cockpit: just push the button placed on the console



TACK ADAPTER FOR:

BAMAR
FACNOR
FURLEX
GOIOT
HAASE
HARKEN
HOOD
NEMO
PLASTIMO
PROFURL
RECKMANN
SCHAEFER

If you take out the locking screws, the motorization slides on the foil and shows the turnbuckle

MEJ RATIO MOTOR

The worm gear ensures a safe mechanical lock when the sail is reefed. The gear is permanently lubricated, therefore it needs little maintenance. The high precision machining ensures quiet operation. It may indifferently operate clockwise or anti-clockwise.

HEIGHT ADJUSTMENT

The unit is supplied with stainless steel link plates that raise the motorization from deck. These link plates are pre-drilled in order to facilitate height adjustment and make the passage of the anchor easy.

N.B.: when you anchor the motorization to the chain-plate you have to make use of a bar toggle (eye-fork or fork-fork toggle). In fact, the toggle is an important anti-rotation element when the sail is reefed.

- A. Use of an eye-fork toggle and special clevis pin to anchor a stay with a turnbuckle and fork terminal
- B. Use of a fork-fork toggle and special clevis pin to anchor a stay with a turnbuckle and eye terminal
- C. Use of a fork-fork toggle and special clevis pin to anchor a stay with an eye terminal
- D. Use of a "rod adapter" to anchor a rod stay.

UNIVERSAL ELECTRIC MOTORIZATION FOR MANUAL FORESAIL FURLERS "RMEJ1.02 – RMEJ2.02"

HOW TO PLACE AN ORDER

1. determine the model depending on the stay diameter, type of foil (please refer to section (B36) TACK ADAPTERS), foresail area, boat length, voltage.
2. choose the accessories needed to modify the stay (please refer to section (B42) STAY MODIFICATION ACCESSORIES on page 48).
3. choose the kind of electric plant you want to install (please refer to (B40) MAIN ACCESSORIES FOR ELECTRIC PLANT on page 46)

(B30–B31)				RMEJ1.02				RMEJ2.02			
VOLTAGE				12V				24V			
STAY DIAMETER mm	08	10	12	14	08	10	12	14	14	16	19
ROD #	-12	-17	-22	-40	-12	-17	-22	-40	-40	-48	-60
CODE	110161080000	110161100000	110161120000	110161140000	110261080000	110261100000	110261120000	110261140000	110262140000	110262160000	110262190000

UNIVERSAL ELECTRIC MOTORIZATION FOR MANUAL FORESAIL FURLERS "RMEJ3–RMEJ4"

HOW TO PLACE AN ORDER

1. determine the model depending on the stay diameter, type of foil (please refer to section (B36) TACK ADAPTERS), foresail area, boat length, voltage.
2. choose the accessories needed to modify the stay (please refer to section (B42) STAY MODIFICATION ACCESSORIES on page 48).
3. choose the kind of electric plant you want to install (please refer to (B40) MAIN ACCESSORIES FOR ELECTRIC PLANT on page 46)

(B32–B33)				RMEJ3 24V				RMEJ4 24V	
STAY DIAMETER mm	19	22	26	28	28	32			
ROD #	-60	-76	-91	-115	-115	-150			
CODE	110213190000	110213220000	110213260000	110213280000	110214280000	110214320000			

(B36) TACK ADAPTERS

In order to fit the RMEJ electric motorization to the existing foils, we have created a series of tack adapters machined from hardcote anodised aluminium. Such tack adapters are locked to the torque tube on the motorization and the foils are fitted inside.

In the table below you will find the codes that help you place the order for the tack adapter corresponding to your furling foil:

Codes to order TACK ADAPTER

BAMAR															
Bamar BMG 30R-40R-50R										Bamar BMG 52-60-70-80-90-110			Bamar 30T - 40T - 50T		
MANUAL FURLER MODEL	R1 / C1	R2 / C2	R3 / C3	R4 / C4	BMG52	BMG60	BMG70	BMG80	BMG90	BMG110	A	B	C / D		
FOIL ABBREVIATION	BMG30R	BMG40R	BMG50R	BMG52	BMG60	BMG70	BMG80	BMG90	BMG110	BMG30T	BMG40T	BMG50T			
Ø STAY 1x19	8	8-10	12-14	14	14-16	19-26	26	28	32	8	10-12	14			
FOIL SECTION mm	23X30	32X40	38X50	43.5X52	50X60	60X70	70X80	80X90	90X110	Ø30	Ø40	Ø50			
TACK ADAPTER for RMEJ 1.02	902011005	902011015	902011025	902011026	902011030					902021000	902021010	902021020			
TACK ADAPTER for RMEJ 2.02				902012026	902012030	902012035									
TACK ADAPTER for RMEJ 3						902013035	902013040	902013045							
TACK ADAPTER for RMEJ 4								902014045	902014055						

FACNOR												
Facnor, R				Facnor, S								
MANUAL FURLER MODEL	R150/200	SD150/165/180	SD200/260/290	SX48	R14	R24	R34	SD320				
FOIL ABBREVIATION	S24	S38	S46	SX48	R14	R24	R34	SD320				
Ø STAY 1x19	8-10	6-8-10	8-12-14		6	8-10	10-12	16-19				
SECTION OF FOILS WITH GROOVES mm	23X36											
SECTION OF ADJUSTING FOIL		Ø 35	Ø 42									
TACK ADAPTER for RMEJ 1.02	902071200	902071205	902071220	902071235	902071241	902071242	902071243					
TACK ADAPTER for RMEJ 2.02				902072240								902072235

FURLEX							
Furlex, B/C/D			Furlex, 200S/300S/400S			Furlex, 500S	
MANUAL FURLER MODEL	B	C	D	200S	300S	400S	500S
FOIL ABBREVIATION mm	20X31	27X40	34X50	21X31	27X39	34X48.5	46X60
Ø STAY 1x19	8	10-12	12-14	6-8	8-10	12-14	16
TACK ADAPTER for RMEJ 1.02	902031250	902031255	902031260	902031265	902031270	902031275	
TACK ADAPTER for RMEJ 2.02			902032260			902031275	902032280

GOIOT			
MANUAL FURLER MODEL	36	45	57
FOIL ABBREVIATION mm	35X57	41X43	51X54
Ø STAY 1x19	8	10	14
TACK ADAPTER for RMEJ 1.02	902081300	902081305	
TACK ADAPTER for RMEJ 2.02			902082310



HAASE

MANUAL FURLER MODEL	3C	4C
FOIL ABBREVIATION		
Ø STAY 1x19	8	10-12
FOIL SECTION mm	Ø 38	Ø 38
TACK ADAPTER for RMEJ 1.02	902091350	902091355
TACK ADAPTER for RMEJ 2.02		



HARKEN

MANUAL FURLER MODEL	UNIT 1.5	UNIT 2	UNIT 2.5	UNIT 3	UNIT 3.25	UNIT 3.5	UNIT 4	UNIT 4.5
FOIL SECTION mm	21X28	27X36	27X36	33X43	33X43	40X49	40X49	50X61
Ø STAY 1x19	8	8-10	12	12	14	16-19	22	25
TACK ADAPTER for RMEJ 1.02	902041400	902041405	902041410	902041415	902041420	902041425		
TACK ADAPTER for RMEJ 2.02						902042425		
TACK ADAPTER for RMEJ 3							902043430	902043435



Hood, SL



Hood, EE/DD/CC

HOOD

MANUAL FURLER MODEL	SL800U-E	SL900U-E	3250CC	3250DD	4880DD	4880EE
FOIL ABBREVIATION						
Ø STAY 1x19	8	10	8	10	12	14
FOIL SECTION mm	Ø 35	Ø 42	23X34	27X38	27X38	33X44
TACK ADAPTER for RMEJ 1.02	902101450	902101455	902101470	902101475	902101476	902101480



Nemo, CR/C



Nemo, DR/D

NEMO

MANUAL FURLER MODEL	TR (2 SAIL GROOVES)	C - CR (2 SAIL GROOVES)	D - DR (2 SAIL GROOVES)
FOIL SECTION mm	Ø 31	Ø 40	Ø 45
Ø STAY 1x19	7	8	10-12
TACK ADAPTER for RMEJ 1.02	902111500	902111505	902111510
TACK ADAPTER for RMEJ 2.02			



Plastimo

PLASTIMO

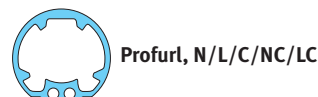
MANUAL FURLER MODEL	1012T-1013T
FOIL ABBREVIATION	
Ø STAY 1x19	10-12
FOIL SECTION mm	
TACK ADAPTER for RMEJ 1.02	902121550



Profurl, B



Profurl, R



Profurl, N/L/C/NC/LC

PROFURL

MANUAL FURLER MODEL	R35	NC32	LC32	C32	B35	R42	NC42	C42	LC42S	LC42R	N52	L52	N70
FOIL ABBREVIATION mm	28X36	Ø 32	Ø 32	Ø 32	Ø 35	34X43	Ø 42	Ø 42	Ø 42	Ø 42	Ø 52		
Ø STAY 1x19	8	8	8	8	10	10	10	12	12	14	14-16	19	25
TACK ADAPTER for RMEJ 1.02	902051600	902051605	902051606	902051607	902051610	902051615	902051620	902051621	902051622	902051625	902051630		
TACK ADAPTER for RMEJ 2.02								902052621			902052630	902052635	
TACK ADAPTER for RMEJ 3													902053640
TACK ADAPTER for RMEJ 4													



Reckmann, R4/R3/R2/R1



Reckmann, RS2000

RECKMANN

MANUAL FURLER MODEL	R1	R2	R3	R4	RS2000-10	RS2000-20	RS2000-30	RS2000-40
FOIL SECTION mm	18X29	22X35	28X44.5	32X49	24.6X31.9	28.8X35.8	36.1X45.5	38.7X49.1
Ø STAY 1x19	8	10	12	12-14	6-8	8-10	10-12	12-14
TACK ADAPTER for RMEJ 1.02	902061650	902061655	902061660	902061665	902061670	902061675	902061680	902061685
TACK ADAPTER for RMEJ 2.02				902062665				902062685



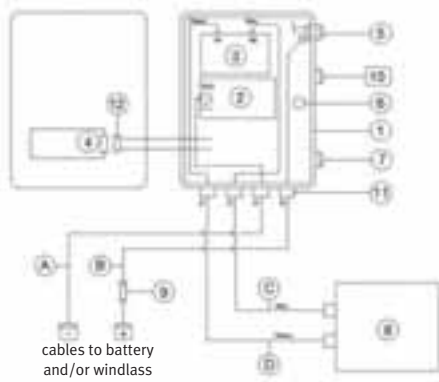
Schaefer Marine

SCHAEFER

MANUAL FURLER MODEL	2100	3100	4100
FOIL ABBREVIATION			
Ø STAY 1x19	10	12	14
FOIL SECTION mm	Ø 34	Ø 39	Ø 45
TACK ADAPTER for RMEJ 1.02	902131700	902131705	902131710
TACK ADAPTER for RMEJ 2.02			

(B40) MAIN ACCESSORIES FOR ELECTRIC PLANT

A wide range of electric accessories complete the electric motorizations (MEJ-RME), RGEEL-RGIEL-RRGEEL etc)



STANDARD ELECTRIC DIAGRAM FOR ONE MOTORIZATION

1. box
2. electronic overload cut-out
3. solenoid
4. radiocontrol (optional)
5. ON/OFF knob / battery cut-out
6. internal sound alarm
7. switch plug
8. motorization

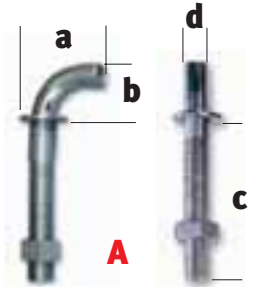
9. fuse (to be dimensioned)
 10. ON/OFF led
 11. fairlead
 12. Boxtron connection to radio receiver
- A. "12/24V" Electric cable (-)
 B. "12/24V" Electric cable (+)
 C. motorization electric cable (black)
 D. motorization electric cable (red)

DIMENSIONS: length 230 mm
 width 280 mm
 height 100 mm

STAINLESS STEEL THROUGH DECK FITTING

The two versions available, straight and bent, of 10 or 15 mm diameter, are used to bring under deck the electric cables coming out of the motorization. Under deck, the cables connect to the Boxtron and the battery, if any.

a = 50 mm d = $\varnothing 9,5$ (external $\varnothing 14$ mm)
 b = 35 mm d = $\varnothing 11,5$ (external $\varnothing 18$ mm)
 c = 100 mm



BOXTRON

It is an essential accessory for the electric plant. Warranty on motorizations is void without it. It is an electronic box that controls the electric supply protecting the plant from possible overloads caused by wrong use while sailing.

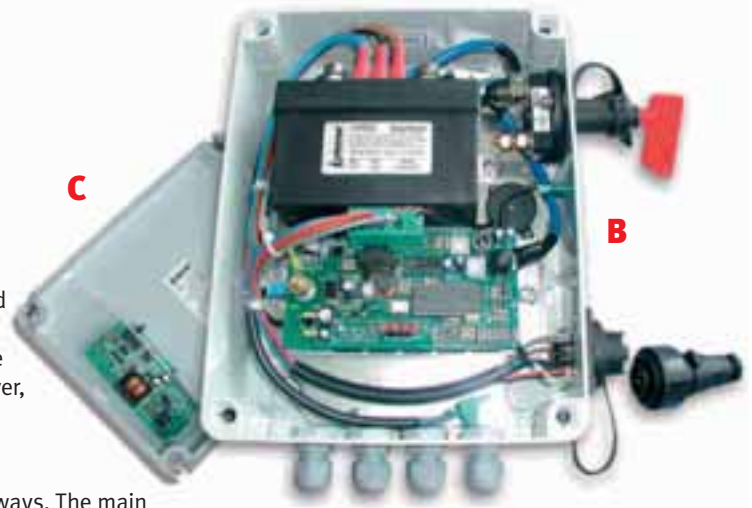
Two versions are available:

- with adjustment of absorption from 06 to 60 amperes – to be used with the cylindrical electric motorizations for mainsail furlers
- with adjustment of absorption from 35 to 150 amperes – to be used with foresail furler motorizations.

It is made up by a pre-assembled box that includes the following components:

1. ampere electronic control
2. ampere threshold adjustment
3. protection self reset after 5 seconds from intervention
4. slow furling start with acceleration ramp
5. adjustable RPM of furler
6. solenoid
7. sound alarm
8. battery cut-out
9. watertight plug and socket
10. watertight fairleads

Boxtron is supplied standard in the "TELE" version (to be connected to a switch on the switch board). The "RADIO" version is obtained by integrating the "OPTIONAL RADIO KIT" to the Boxtron TELE. The RADIO KIT is made up by a lid with an integrated Radio-control receiver, a connector and a radio transmitter.



SWITCHES

As previously highlighted, Boxtron may be controlled in different ways. The main systems are:

- 1 function toggle switch
- water-tight 1 function command with "spiral" electric cable (max length 4 m) and 6 poles plug
- 1 or more functions radio-control transmitter. We may supply 1+1 functions transmitter (4 buttons) to be used in order to control two motorizations that are connected to two separate electric plants.



ACCESSORIES

ACCESSORIES	CODICE
A Stainless steel through deck fitting $\varnothing 10$ mm	901100401
A Stainless steel through deck fitting $\varnothing 15$ mm	901100402
A Bent stainless steel through deck fitting $\varnothing 10$ mm	901100403
A Bent stainless steel through deck fitting $\varnothing 15$ mm	901100404
B 12/24 Volt Boxtron "TELE" for 1 motor with ramp and self reset 35-150a for MEJ	903050520
B 12/24 Volt Boxtron "TELE" for 1 motor with ramp and self reset 06-60a for RGIEL/RGEEL	903050525
C Optional "RADIO" kit for Boxtron (1 motor) (receiver + transmitter)	903051620
D Toggle switch + label (1 function)	903080900
E 1 function watertight command with cable + 6 poles plug (2 buttons)	903100900
F Compact 1 function radio-control transmitter (2 buttons)	903110800
G Compact 1+1 functions radio-control transmitter (4 buttons) (for n.2 single BOXTRONS "RADIO")	903110850

(B41) SECONDARY ACCESSORIES FOR ELECTRIC PLANT

Of course, the series of electric accessories is not limited to the above-mentioned products. Bamar has a wide range of articles that allow the buyer to organise the plant following their own exigencies.








In the table below you will find the codes to place the order:

ACCESSORIES	CODE			
electric drill adapter for manual emergency clutch	901102601			
manual emergency articulated adapter - double handle	901102602			
jack adapter for manual emergency clutch	901102603			
thermal magnet 40 amp	903010003			
thermal magnet 75 amp	903010004			
thermal magnet 100 amp	903010005			
thermal magnet 150 amp	903010006			
unipolar battery cut-out	903020000			
12v solenoid - 2functions 130a	903030003			
24v solenoid - 2functions 100a	903030004			
12v solenoid - 1function	903040003			
24v solenoid - 1function	903040004			
extra coated electric wire l=4,0 m for Mej1/Mej2	903040100			
extra coated electric wire l=2,5 m for Mej1/Mej2	903040105			
12v Boxtron "tele" 2 motor with ramp and self-reset for RGEL and TBEL	903050601			
24v Boxtron "tele" 2 motor with ramp and self-reset for RGEL and TBEL	903050602			
6 poles 1f plug for switch on "tele" & "radio" box	903060900			
6 poles socket + cap	903060901			
6 poles socket + plug + cap	903060902			
branch point box	903070000			
foot switch + cover ext. Ø 75mm	903090000			
2f watertight remote control - cable + plug (4 switches)	903101100			
3f watertight remote control - cable + plug (6 switches)	903101300			
4f watertight remote control - cable + plug (8 switches)	903101500			
2f compact radio-control hand-held transmitter (4 switches) (to be used with an external radio-control)	903110900			
3f maxi radio-control hand-held transmitter (6 switches) (to be used with an external radio-control)	903111000			
4f maxi radio-control hand-held transmitter (8 switches) (to be used with an external radio-control)	903111100			
5f maxi radio-control hand-held transmitter (10 switches) (to be used with an external radio-control)	903111200			
1f radio receiver (2 switches) + Compact radio transmitter	903120800			
2f radio receiver (4 switches)+ Compact radio transmitter	903120900			
3f radio receiver (6 switches)+ Maxi radio transmitter+antenna	903121000			
4f radio receiver (8 switches)+ Maxi radio transmitter+antenna	903121100			
5f radio receiver (10 switches)+ Maxi radio transmitter+antenna	903121200			
25 mm ² mono electric cable	903150007			
35 mm ² mono electric cable	903150008			
50 mm ² mono electric cable	903150009			
70 mm ² mono electric cable	903150010			
95 mm ² mono electric cable	903150011			
2,5 mm ² tripol. electric cable	903150015			
7f panel without console - 12/24v built-in switches	903210020			
7f panel with console - 12/24v built-in switches	903220020			
5f panel without console - 12/24v toggle switches	903230020			
5f panel with console - 12/24v toggle switches	903240020			

(B42) STAY MODIFICATION ACCESSORIES

The electric foresail furler MEJ is hollow inside, thus allowing the housing of a turnbuckle and the passage of the stay to the chain plate. Therefore, we supply a list of accessories needed to complete and/or modify the stay.

HOW TO CHOOSE THE ACCESSORIES TO COMPLETE AND/OR MODIFY THE STAY

MANUAL FORESAIL FURLER	TYPE OF STAY	STANDARD THREADED TERMINAL	LONG THREADED TERMINAL	FORK TURNBUCKLE	SPECIAL CLEVIS PIN	ANTI-TORQUE EYE/FORK TOGGLE	ANTI-TORQUE FORK/FORK TOGGLE	"RECKMANN" ROD ADAPTER
								
BAMAR	FUNE				●	●		
	ROD				●	●		
FACNOR FURLEX	FUNE	●*		●*	●	●*	●**	
	ROD				●		●	
GOIOT	FUNE				●	●		
HAASE	FUNE		●	●	●	●		
HARKEN	FUNE		●	●	●	●		
	ROD			●	●	●		
HOOD	FUNE	●		●	●	●		
NEMO	FUNE				●	●		
PLASTIMO	FUNE				●	●		
PROFURL	FUNE				●	●		
	ROD				●	●		
RECKMANN	FUNE	●		●	●	●		
	ROD				●			●
SCHAEFER	FUNE				●		●	
	ROD				●		●	

* Excluding models 2005 e 3005 ** only for models 2005 e 3005

Ø WIRE mm	R/MEJ1.02				R/MEJ2.02			
	8	10	12	14	14	16	19	
PIN Ø mm	12.5	15.6	18.5	21.5	21.5	25.0	28.2	
STANDARD STA-LOK THREADED TERMINAL	209010800	209011000	209011200	209011400	209011400	209011600	209011900	
LONG STA-LOK THREADED TERMINAL	209020800	209021000	209021200	209021400	209021400	209021600	209021900	
BRONZE TOGGLE FORK TURNBUCKLE	209030800	209031000	209031200					
S.S. TOGGLE FORK TURNBUCKLE				209031400	209031400			
FORK TURNBUCKLE						209041600	209041900	
SPECIAL CLEVIS PIN	901101015	901101025	901101030	901101035	901101135	901101140	901101145	
EYE/FORK TOGGLE	209050801	209051001	209051201	209051401	209051401	209051601	209051901	
FORK/FORK TOGGLE	210010801	210011001	210011201	210011401	210011401	210011601	210011901	

Ø WIRE mm	R/MEJ3				R/MEJ4			
	19	22	26	28	28	44.5	47.6	54.0
PIN Ø mm	28.2	31.5	34.6	39.7	39.7	44.5	47.6	54.0
STANDARD STA-LOK THREADED TERMINAL	209011900	209012200	209012600					
LONG STA-LOK THREADED TERMINAL	209021900	209022200	209022600					
S.S. TOGGLE FORK TURNBUCKLE	209041900	209042200	209042600					
SPECIAL CLEVIS PIN	901101245	901101250	901101255	901101260	901101360	901101365	901101370	901101375
EYE/FORK TOGGLE	209051901	209052201	209052601	A richiesta	A richiesta	A richiesta	A richiesta	A richiesta
FORK/FORK TOGGLE	210011901	210012201	210012601	A richiesta	A richiesta	A richiesta	A richiesta	A richiesta

Should the RMEJ motorization replace a Reckmann drum fitted on a rod stay, you need to use a special adapter to lock the lower head of the stay located inside the original drum.

In the table below you will find the codes to place the order:

MANUAL FORESAIL FURLER MODEL	R1 "OLD"			R2 "OLD"		R3 "OLD"			R4 "OLD"		
ROD #	-8	-10	-12	-12	-17	-17	-22	-30	-30	-40	-48
CODE	901105008	901105010	901105012	901105112	901105117	901105217	901105222	901105230	901105330	901105340	901105348

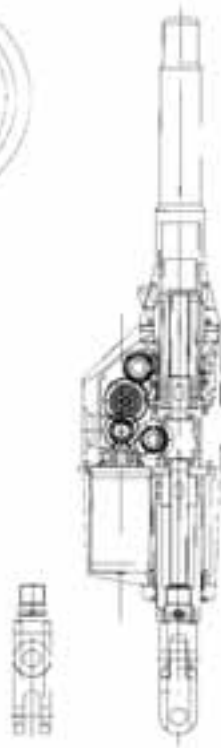
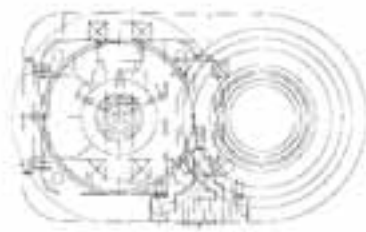


If you decide to install an electric foresail furler MEJ1.02 on your inner forestay too, we suggest you use the accessory "Sheet protection plate". It is a stainless steel protection plate that, if applied to the front of the s.s.cover of the staysail motorization, prevents the foresail sheet from jamming under the cover while sailing.

The code to place the order is:

Stainless steel sheet protection for MEJ1.02 901106500

(B45) EJF ELECTRIC FORESAIL FURLER



The technological evolution in the world of sailing yachts is more and more directed towards motorised mechanisms.

Thanks to the experience acquired with hydraulic furlers, BAMAR presents a line of electric furlers that have higher pull capacity, allow synchronization among different movements, and are simple to install.

Better performances on sailing yachts increase comfort onboard bringing it to the same level, if not higher, of a motor yacht.

EJF originates from a combination between innovative technology and modern design.

The electric foresail furler allows you to reef, furl or unfurl the sail by pushing a button. A model for boats from 15 to 55 m sailing yachts is available.

The reversible furling operation is based on a worm gear that grants the mechanical lock (it prevents the sail from unfurling under load) when the sail is furled in.

The lower connection may rotate by 90° in order to adapt to any type of chain plate.

The furler is manufactured in anodised aluminium with stainless steel type AISI 316 components.

The forestay tension may be adjusted with a standard winch handle that acts on a self-locking worm gear.

When the handle is inserted, it automatically disconnects the electric motor in order to prevent an accidental motorized operation.



ELECTRIC FURLER
EJF 4 the tension of the stay
may be adjusted with a
standard winch handle.

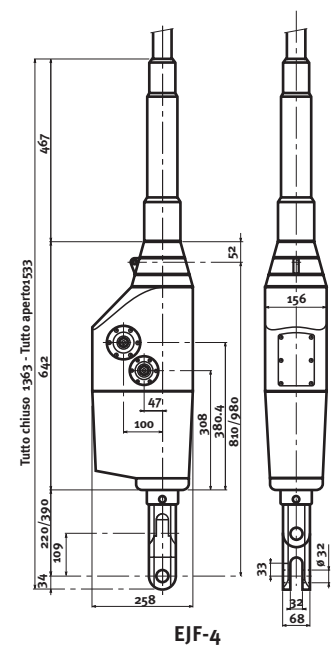


HOW TO PLACE THE ORDER

1. determine the model depending on stay length and diameter, foresail area, boat length, and boat voltage.
2. choose the type of electric plant you want to install (please refer to section (B40) MAIN ACCESSORIES FOR ELECTRIC PLANTS on page 46)

EJF 4

VOLTAGE	24V			
FOIL SECTION	BMG52	BMG60	BMG70	BMG80
STAY DIAMETER mm	14	16	19	22
ROD #	-40	-48	-60	-76 / -91
STAY LENGTH m				
25,5	110208142616	110208163016		
33,0			110208193521	
42,0				110208224014



(B50-B51-B52-B53-B54-B55) GFI HYDRAULIC FORESAIL FURLER

Bamar "GFI" series: hydraulic systems to furl and reef foresails, a combination between innovative technology and experience acquired at the service of prestigious boat yards.

These systems offer and grant great performance and long life, because they are designed and manufactured with the best materials and CNC machines.

These products need scarce maintenance and are supplied with vanguard transmission systems. The use of high quality industrial parts, such as bearings, gears, and worm screws, makes the automatic stop reduction gear smooth and silent.

The high torque efficiency developed by the GFI is granted by the use of "DANFOSS" orbital hydraulic motors. The worm screw reduction gear is an irreversible mechanism that absorbs the load created by the sail area without transmitting it to the hydraulic motor.

The manual emergency clutch represents an extra safety element for the user: it is operated with a winch handle. During the manual operation, the hydraulic motor must not be started.

A main characteristic of **BAMAR GFI** hydraulic systems is the possibility of being combined with an integrated hydraulic cylinder that allows the tension of the stay. Thus, each model may be supplied in the "standard" version or "with hydraulic stay adjuster".



Quick release through deck fitting made of stainless steel and aluminium - you may disconnect the forestay without oil leak.

Code 311050001

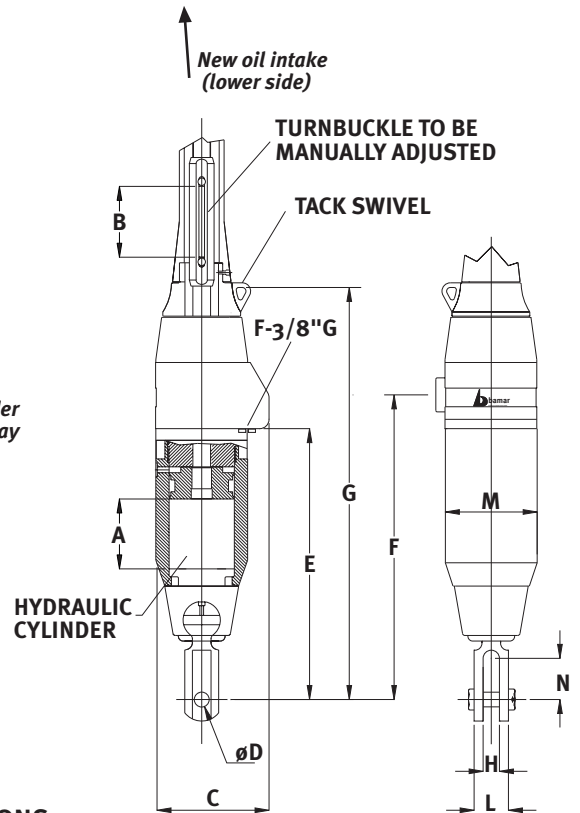
The lower toggle is **customized** to perfectly adapt to the chain plate.

All Bamar hydraulic components make use of environment friendly oil, in compliance with EU rules.

Every piece is tested before shipment, in order to check its conformity to technical characteristics.

Version without integrated cylinder to tension the stay

Version with integrated cylinder to tension the stay

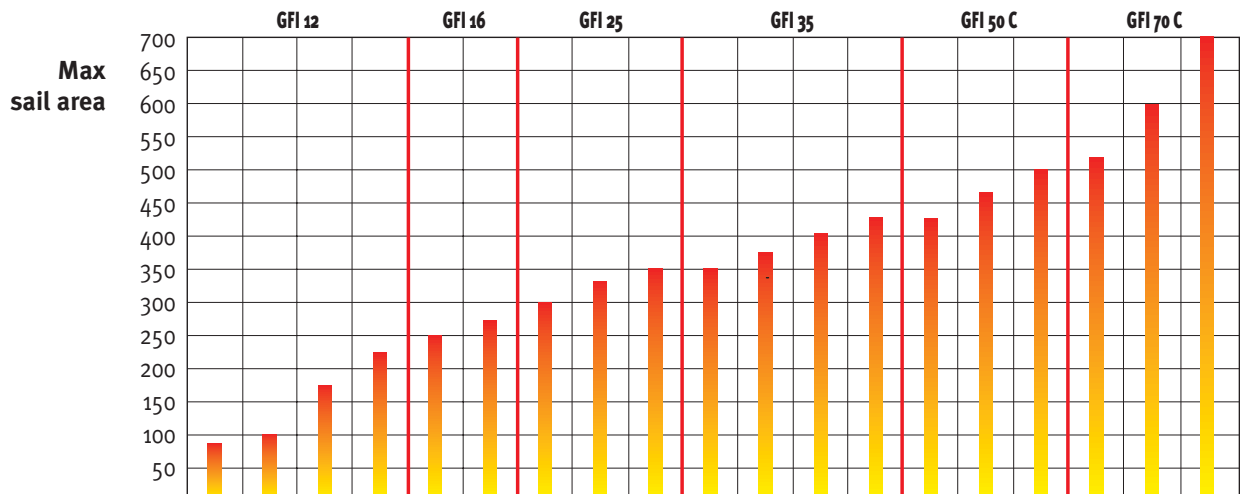


WEIGHT AND DIMENSIONS

GFI DESCRIPTION OF PARTS		12	12 C	16	16 C	25	25 C	35	35C	50C	70C
Continuous / intermitting oil flow	lt/min	20/25		20/25		20/25		20/25		25/30	*
Continuous / intermitting oil pressure	bar	100/140		100/140		100/140		100/140		175/200	*
Cylinder stroke	A mm	100		100		150		150		300	300
Turnbuckle stroke	B mm	100		100		150		150		200	200
Body dimension	C mm	202		231		243		271		380	530
Pin Ø range	D mm	15,6-25		25-28,5		31,5-35		35-44		custom	custom
Body dimension	E mm	235	422	261	462	318	581	397	652	770	1038
Hydraulic fittings and emergency clutch	F mm	278	465	304	505	390	654	443	698	770	1230
Sail tack	G mm	492	680	558	760	621	884	729	984	1180	1364
Fork width	H mm	29		29		35		46		custom	custom
Fork external dimension	L mm	54		61		74		90		custom	custom
Body dimension / Cylinder external Ø	M mm	148		177		197		227		240	360
Fork height	N mm	40		50		88		115		custom	custom
GFI weight (C=with hydraulic cylinder)	Kg	26	32	42	52	55	74	82	105	188	

* data available on demand

HOW TO CHOOSE THE FORESAIL FURLER



Type of foil	BMG	40R	50R	52	52	60	70	70	80	90	90	110	110	110	110	145	145	145	185	185
Max Rod section	#	-10/-17	-22/-30	-30	-40	-40	-48	-60*	-76	-91	-91	-115	-150	-170	-170	-260	-320	-320	-360	-430
Max wire ø	mm	10	12	14	16	16	19	22	26	26	26	28	32	-	-	36	-	-	-	-
Max stay length	m	16.5	22.5	25.5	27	30	33	36	39	42	42	42	45	45	45	50	55	55	60	70

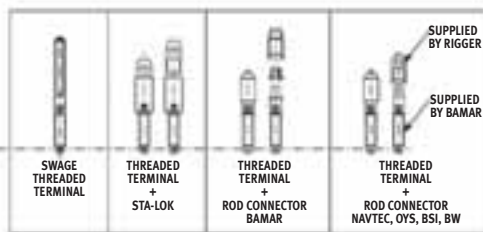
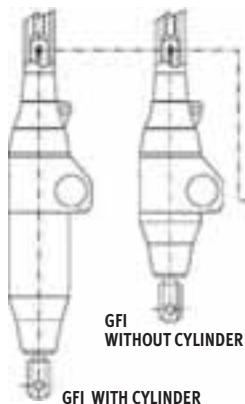
Technical data shown are indicative and not binding.

The foresail furler "GFI" kit includes:

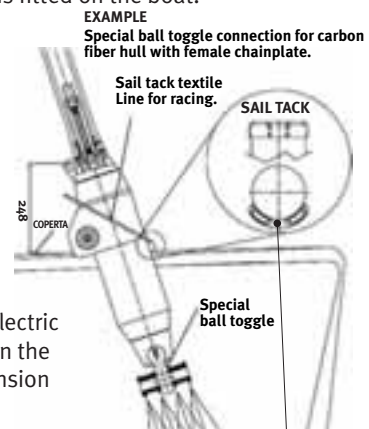
* only monothread

- hydraulic motorization
- manual turnbuckle
- hoisting foil
- halyard swivel + shackles
- grease tube
- stainless steel ball toggle
- tack adapter
- foils + connectors
- screws to lock connectors
- Loctite

The kit does not include the threaded terminal for the connection to the stay, because it differs depending whether the stay is in 1x19 wire, rod, or dyform. Therefore, when placing the order you have to specify what type of stay is fitted on the boat.



On hydraulic foresail furlers the stay is not independent as it is on electric foresail furlers. In fact, it has to be connected to a stud integrated in the motorization. This stud is the upper end of a turnbuckle used to tension the stay.



GFI 12 Racing sail tack
Code 901104501

HOW TO PLACE THE ORDER

1. determine the model depending on stay length and diameter, foresail area, and boat length.
2. choose the right terminal for the stay.
3. decide whether you want to install an integrated cylinder to tension the stay (see section (B56) HYDRAULIC CYLINDER FOR GFI on page 52). In such case you will also need a BHP hydraulic panel (see section (E10) BHP HYDRAULIC PANELS on page 90) complete with hydraulic plant and fittings (see section (E96) BAMAR HYDRAULIC ACCESSORIES FOR BHP on page 94)

B50

FOIL SECTION	GFI12						GFI12 RACING	
	BMG40R		BMG50R	BMG52		BMG52	BMG60	
STAY DIAMETER mm (1x19)	ø8	10	12	12	14	16	Speciale solo immagazzinatore	Speciale solo immagazzinatore
ROD #	-10	-17	-22 / -30	-30	-40	-40	-48	-60
LENGTH m								
15.0	110301081509				110301122609			
16.5	110301101510							
18.0			110301122511	110301122611				
19.5			110301122512		110301122612			
21.0			110301122513		110301122613			
22.5					110301142614			
24.0					110301142615			
25.5							110301162616	
27.0							110301162617	
33.0							110301602622	
110301612622							110301612622	
Swage threaded terminal			904010112	904010112	904010114	904010116		
STALOK threaded terminal	904010208	904010210	904010212	904010212	904010214	904010216		
ROD BAMAR threaded terminal	904010353	904010356	904010357	904010358	904010359	904010359	904010360	904010361
ROD NAVTEC threaded terminal	904010453	904010456	904010457	904010458	904010459	904010459	904010460	904010461
ROD OYS threaded terminal	904010553	904010556	904010557	904010558	904010559	904010559	904010560	904010561
ROD BSI threaded terminal	904010653	904010656	904010657	904010658	904010659	904010659	904010660	904010661
ROD BW threaded terminal	904010753	904010756	904010757	904010758	904010759	904010759	904010760	904010761

B51**GFI16**

FOIL SECTION	BMG60		BMG70
STAY DIAMETER mm (1x19)		16	19
ROD #	-40	-48	-48
LENGTH m			
21.0		110302163013	
22.5			
24.0			
25.5			
27.0		110302163017	
30.0			110302193519
36.0			110302193523
SWAGE threaded terminal			904030119
STALOK threaded terminal		904030216	904030219
ROD BAMAR threaded terminal	904030359	904030360	904030360
ROD NAVTEC threaded terminal	904030459	904030460	904030460
ROD OYS threaded terminal	904030559	904030560	904030560
ROD BSI threaded terminal	904030659	904030660	904030660
ROD BW threaded terminal	904030759	904030760	904030760

B52**GFI25**

FOIL SECTION	BMG70	BMG80	BMG90
STAY DIAMETER mm (1x19)	22	26	26
ROD #	-60	-76	-91
LENGTH m			
27.0	110303223516	110303264008	
33.0	110303223519	110303264010	
36.0	110303223522	110303264011	
39.0		110303264012	
42.0			110303264513
SWAGE threaded terminal	904050122	904050126	904050126
STALOK threaded terminal			
ROD BAMAR threaded terminal	904050361	904050362	904050364
ROD NAVTEC threaded terminal	904050461	904050462	904050464
ROD OYS threaded terminal	904050561	904050562	904050564
ROD BSI threaded terminal	904050661	904050662	904050664
ROD BW threaded terminal	904050761	904050762	904050764

B53**GFI35**

FOIL SECTION		BMG110		
STAY DIAMETER mm (1x19)		28	32	
ROD #	-91	-115	-150	-170
LENGTH m				
42.0		110304285513	110304325513	110304675513
45.0			110304325514	
SWAGE threaded terminal		904070128	904070132	
STALOK threaded terminal				
ROD BAMAR threaded terminal	904070364	904070365	904070366	904070367
ROD NAVTEC threaded terminal	904070464	904070465	904070466	904070467
ROD OYS threaded terminal	904070564	904070565	904070566	904070567
ROD BSI threaded terminal	904070664	904070665	904070666	904070667
ROD BW threaded terminal	904070764	904070765	904070766	904070767

B54**GFI50**

FOIL SECTION	BMG 110	BMG 145	BMG 145
STAY DIAMETER mm (1x19)			
ROD #	-170	-260	-320
LENGTH m			
45	110305676308		
50		110305706310	
55			110305717812

B55**GFI70**

FOIL SECTION	BMG 145	BMG 145	BMG 185
STAY DIAMETER mm (1x19)			
ROD #	-320	-360	-430
LENGTH m			
55	110307717519		
60		110307728020	
70			110307738025

(B56) HYDRAULIC CYLINDER FOR GFI

The basic hydraulic furler is supplied with a manual turnbuckle. As an option, we offer the hydraulic cylinder to be integrated to the motorization.

MODEL	CODE	STROKE mm
Hydraulic cylinder for GFI 12	901102705	100
Hydraulic cylinder for GFI 16	901102706	100
Hydraulic cylinder for GFI 25	901102707	150
Hydraulic cylinder for GFI 35	901102708	150
Hydraulic cylinder for GFI 35	901102709	300

(B57) "RGFI" UNIVERSAL HYDRAULIC MOTORIZATION FOR FORESAIL FURLERS

Apart from the hydraulic foresail furlers complete with foils, Bamar presents a line of hydraulic motorizations to replace the furling drum or motorization on existing foresail furlers.

VERSATILITY

By means of an "ADAPTER", the motorization may be fitted on all models of foresail furlers available on the market. You just need to take off the manual drum or the existing motorization and replace it with the "RGFI" motorization. By keeping the original foils and halyard swivel you save money, as you do not need labour to take them off.

MATERIALS

Most components are machined from aluminium type 6061-T6, protected by hardcote anodising, and some parts are made of stainless steel. In order to get the best mechanical resistance of materials, we use extruded aluminium to be machined with CNC machines. Aluminium has a high coefficient of resistance to UV rays. All plastic materials, ball bearings and bushes, are protected inside the mechanism, thus granting a long life in salty environments subject to high UV rays concentration.



TACK ADAPTER FOR:

BAMAR
FACNOR
FURLEX
GOIOT
HAASE
HARKEN
HOOD
NEMO
PLASTIMO
PROFURL
RECKMANN
SCHAEFER

FAILSAFE OPERATION

In the event of a total failure of the boat's hydraulic system, the unit can be manually operated, by inserting a standard winch handle in the manual emergency clutch.

*Version without stay
tensioning cylinder*

USE OF THE EXISTING STAY

The motorization is supplied with a manual turnbuckle, thus allowing the use of the existing stay. You just need to cut the stay to measure and then fit Sta-lok threaded studs and terminals (see to page 51-52).

The system is also supplied with a spherical fork toggle that may be fitted directly onto the boat's chainplate.



Option with stay tensioning cylinder



Sail tack and access to the integrated manual turnbuckle

UNIVERSAL HYDRAULIC MOTORIZATION FOR FORESAIL FURLERS "RGFI 12-16-25-35"

HOW TO PLACE AN ORDER

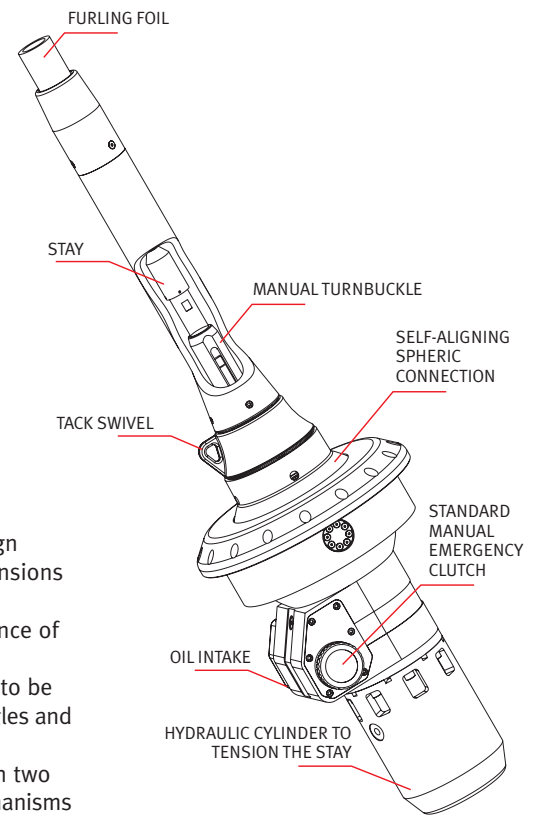
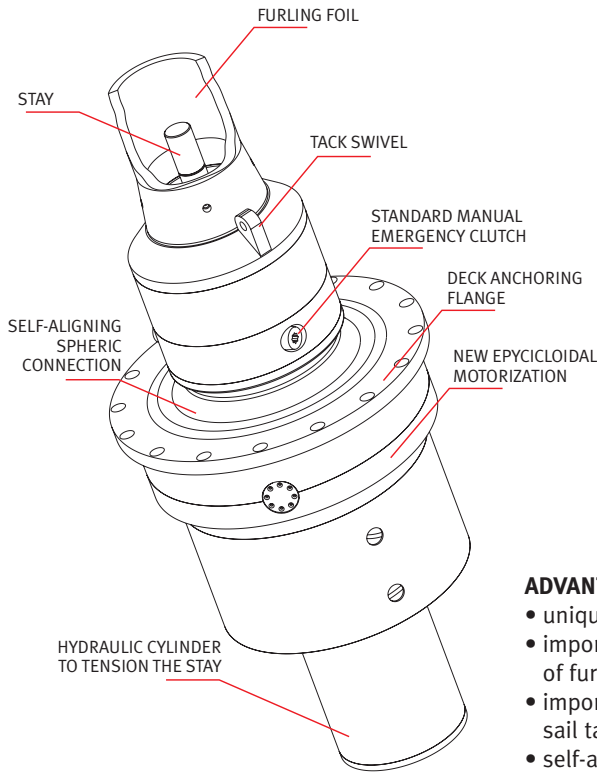
- determine the model depending on the stay diameter, type of foil fitted on the existing furler (please refer to section (B36) TACK ADAPTERS on page 44), foresail area, boat length, and characteristics of the boat's power-pack.
- choose the right stud and terminal for the connection to the stay (please refer to GFI chapter pages 51-52)

B57	RGFI 12				RGFI 16	
	10	12	14	16	16	19
1x19 WIRE STAY DIAMETER mm						
ROD #	-17	-22	-30	-40	-40	-48
CODE	110301109900	110301129900	110301149900	110301169900	110302169900	110302199900

B57	RGFI 25			RGFI 35		
	22	26		28	32	
1x19 WIRE STAY DIAMETER mm						
ROD #	-60	-76	-91	-115	-150	-170
CODE	110303229900	110303269900	110303649900	110304289900	110304329900	110304679900

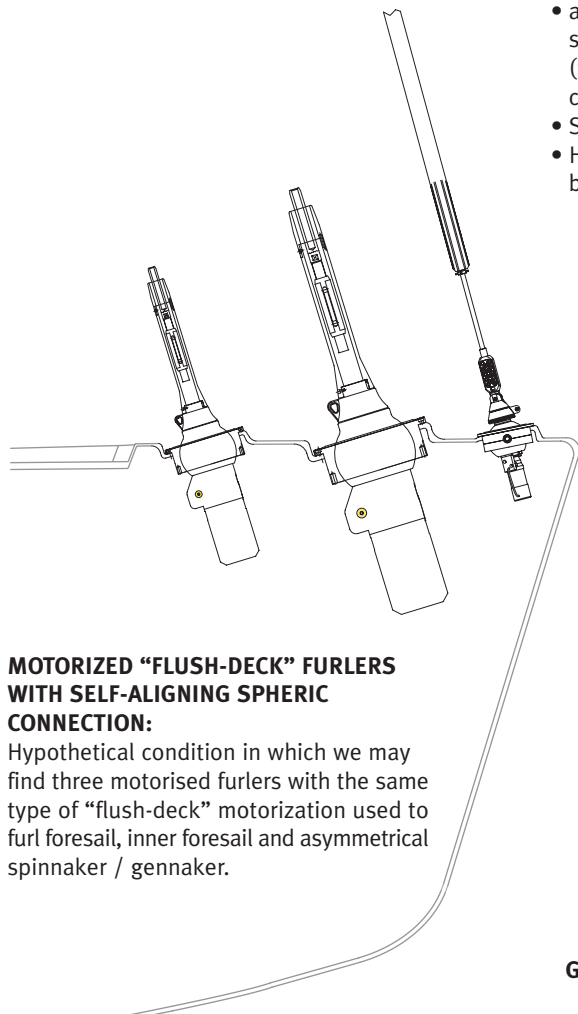
(B65 - B78) "FLUSH-DECK" FURLERS WITH SELF-ALIGNING SPHERIC CONNECTION

New line of motorized "flush-deck" foresail furlers making use of a unique self-aligning spherical connection. The system allows keep the motorization hidden below deck, thus the furling foils are very low above deck. These furlers are available in different dimensions with either electric or hydraulic motorizations, and may be equipped with an integrated cylinder to tension the stay.



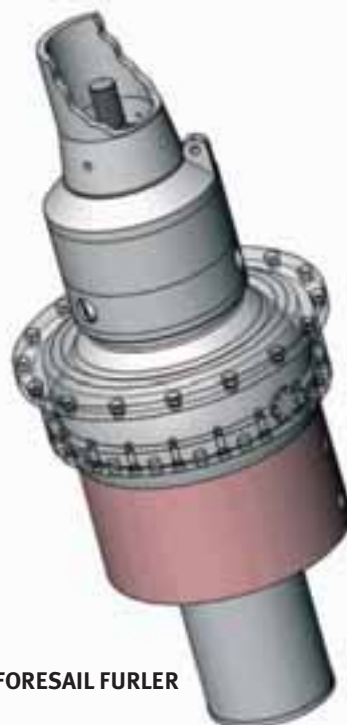
ADVANTAGES:

- unique and captivating design
- important reduction of dimensions of furler above deck
- important reduction of distance of sail tack from deck
- self-aligning spheric system to be fitted flush-deck without toggles and chainplates.
- all models may be fitted with two separate stay adjusting mechanisms (manual turnbuckles and hydraulic cylinders)
- Standard manual emergency clutch
- Hydraulic / electric connections below deck



MOTORIZED "FLUSH-DECK" FURLERS WITH SELF-ALIGNING SPHERIC CONNECTION:

Hypothetical condition in which we may find three motorised furlers with the same type of "flush-deck" motorization used to furl foresail, inner foresail and asymmetrical spinnaker / gennaker.



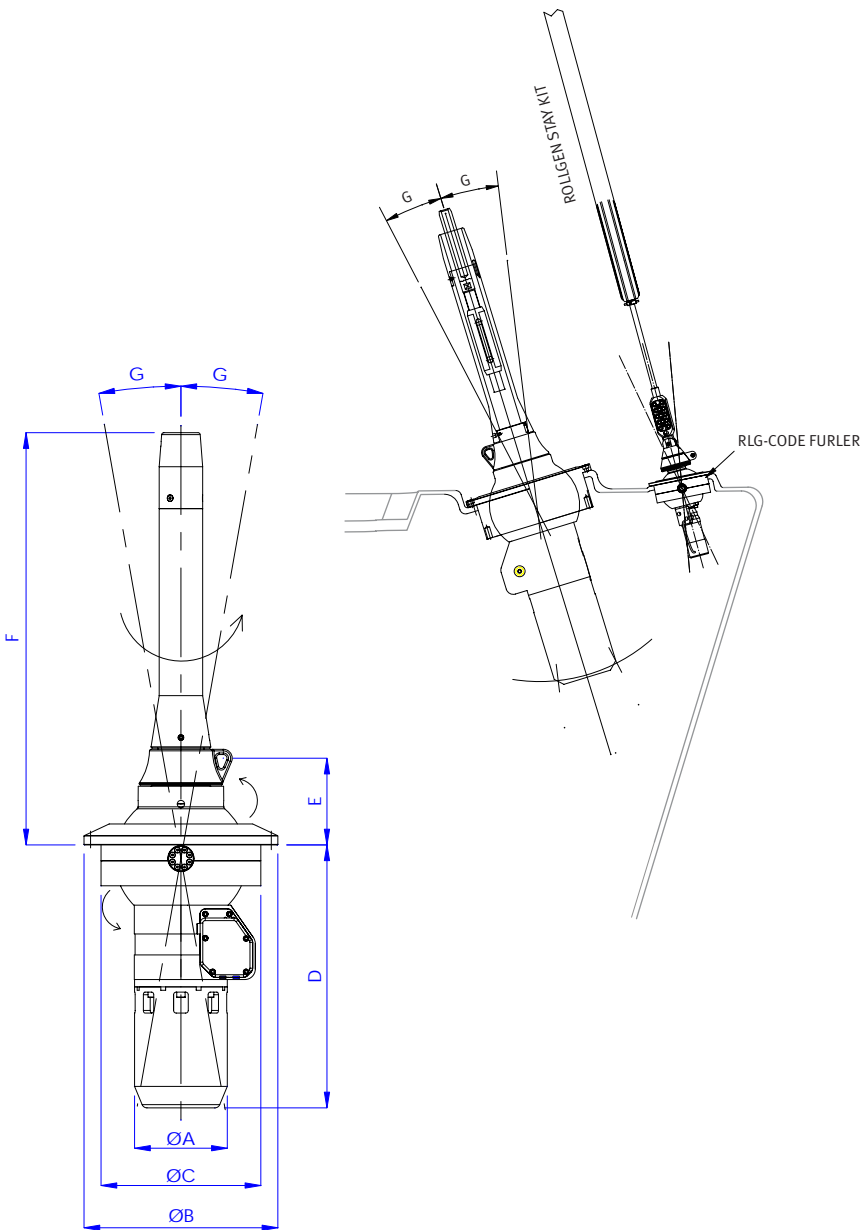
GFSIP FORESAIL FURLER



GFSIC FORESAIL FURLER

(B65-B66-B67-B68-B69-B70) GFSI HYDRAULIC FURLERS WITH SELF-ALIGNING SPHERIC CONNECTION

One of the main characteristics of Bamar GFSI furlers is that they are to be fitted flush-deck, thus leaving the deck clean and tidy. Moreover, these systems may be combined with an integrated hydraulic cylinder that allows for the adjustment of the stay. Therefore, each model may be supplied in the "standard" version (with a manual turnbuckle) or with hydraulic stay adjuster.



GFSIC

GFSI PARTS DESCRIPTION		12	12 C	16	16 C	25	25 C	35	35 C	50C	70 C
Type of foil	BMG	40R-50R-52		60-70		70-80-90		90-110		110-145	145-225
ROD #		-17 -30 -40		-40 -48 -60		-60 -76 -91 -91		-115 -150 -170-170/-320-320/-430			
1x19 wire stay diameter	mm	10-12-14-16		16-19		22-26		26-28-32		36	-
Continuous / intermitting oil flow	lt/min	20-25		20-25		20-25		20-25		25-30	*
Continuous / intermitting oil pressure	bar	100-140		100-140		100-140		100-140		175-200	*
Body / cylinder external Ø	A mm	148		177		197		227		240	
External upper flange Ø	B mm	330		370		395		498		598	
Internal lower flange Ø	C mm	282		305		330		420		520	
Below deck dimensions	D mm	304	481	320	500	330	571	*	700	850	
Tack swivel	E mm	146		172		178		185		200	
Telescopic torque tube	F mm	727,5		787		1035		1155		1320	
Inclination of spherical connection	G	10 ^º	10 ^º	10 ^º	10 ^º	10 ^º	10 ^º	10 ^º	10 ^º	10 ^º	
Cylinder stroke	mm	-	100	-	100	-	150	-	150	300	
Cylinder max pressure	bar	-	350	-	350	-	350	350	350		
Manual turnbuckle stroke	mm	100		100		150		150		200	
GFSI weight (C = with hydraulic cylinder)	kg	On demand									

Technical data shown are indicative and not binding

* Data available on demand

HOW TO PLACE AN ORDER

1. determine the model depending on the stay diameter and length, foresail area, boat length, and characteristics of the boat's power-pack.
2. choose the right stud and terminal for the connection to the stay (please refer to GFI THREADED STUDS chapter pages 51 and following)
3. decide whether the installation of the integrated stay tensioning cylinder may be useful. In such case, you would also need to fit a BHP panel (please refer to chapter (E10) BHP HYDRAULIC PANEL on page 90) with its hydraulic plant and fittings (please refer to chapter (E96) BAMAR HYDRAULIC ACCESSORIES FOR BHP on page 94)

B65-B66		GFSI 12					GFSI 16			
FOIL SECTION		BMG40R		BMG50R	BMG52		BMG60	BMG70		
1x19 WIRE STAY DIAMETER	mm	8	10	12	12	14	16	16	19	22
ROD #		-17	-17	-22 / -30	-22 / -30	-30	-40	-48	-48	-60
LENGTH m	15,0	110320081509			110320142609					
	16,5		110320101510							
	18,0			110320122511	110320122611					
	19,5			110320122512	110320122612					
	21,0			110320122513	110320122613			110321163013		
	22,5					110320142614				
	24,0					110320142615				
	25,5						110320162616			
	27,0						110320162617	110321163017		
	28,5									
	30,0								110321193519	110321223519
	33,0									
	36,0								110321193523	

B67-B68		GFSI 25			GFSI 35			
FOIL SECTION		BMG70	BMG80	BMG90	BMG90	BMG110		
1x19 WIRE STAY DIAMETER	mm	22	26	26	28		32	
ROD #		-60	-76	-91	-115	-115	-150	-170
LENGTH m	27,0	110322223517	110322264008					
	28,5							
	30,0							
	33,0	110322223521	110322264010					
	36,0	110322223523	110322264011					
	39,0		110322264012		110323284512			
	42,0			110322264513		110323285513	110323325513	110323675513
	45,0						110323325514	
	48,0							
	51,0							

B69-B70		GFSI 50			GFSI 70		
FOIL SECTION		BMG110	BMG145		BMG145	BMG185	
1x19 WIRE STAY DIAMETER	mm						
ROD #		-170	-260	-320	-320	-360	-430
LENGTH m	45,0	110324675516					
	50,0		110324706520				
	55,0			110324716523	110324706520		
	60,0					110325728023	
	70,0						110325738026

(B72) HYDRAULIC CYLINDER FOR GFSI 12 - 16 - 25 - 35

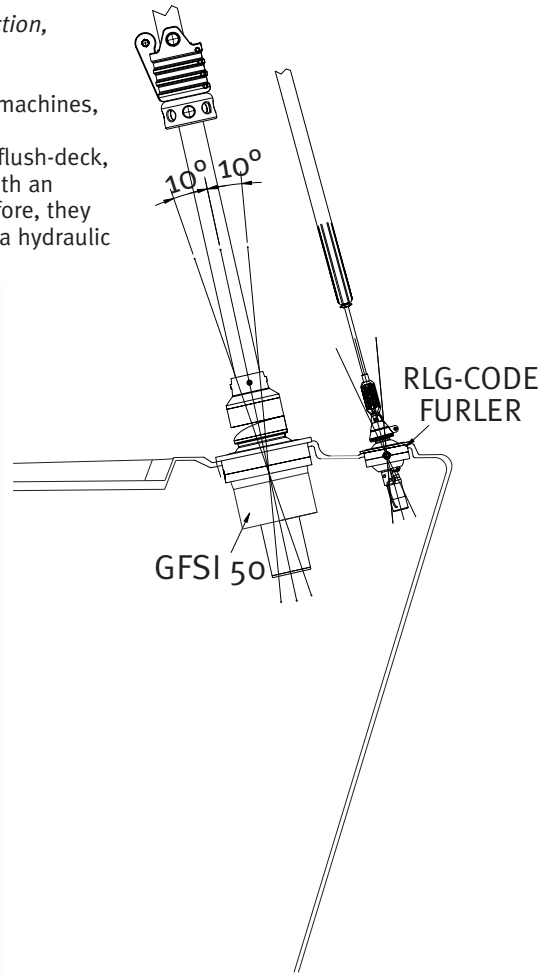
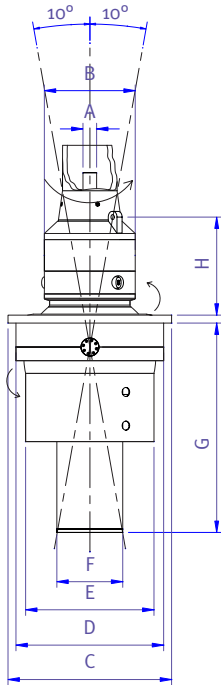
The standard hydraulic foresail furler is supplied with a manual turnbuckle.
We offer the hydraulic cylinder to be integrated in the motorization as an option

MODEL	CODE	STROKE mm
GFSI 12	901102710	100
GFSI 16	901102711	100
GFSI 25	901102712	150
GFSI 35	901102713	150

(B75-B76-B77-B78) GFSIP PLANETARY HYDRAULIC FURLERS WITH SELF-ALIGNING SPHERIC CONNECTION

A new innovative range of hydraulic furlers with self-aligning spherical connection, to be used to furl and reef foresails.

These systems, designed and manufactured with the best materials and CNC machines, offer and grant great performance thanks to their planetary gear boxes. Another important feature of Bamar GFSIP furlers is that they are to be fitted flush-deck, thus leaving the deck clean and tidy. Moreover, these systems are supplied with an integrated hydraulic cylinder that allows for the adjustment of the stay. Therefore, they allow for a double adjustment of the stay, with a manual turnbuckle and with a hydraulic stay adjuster.



HOW TO PLACE AN ORDER

1. determine the model depending on the stay diameter and length, foresail area, boat length, and characteristics of the boat's power-pack.
2. choose the right stud and terminal for the connection to the stay (please refer to GFI THREADED STUDS chapter pages 51 and following)
3. Since the furler is fitted with an integrated stay tensioning cylinder you will also need to fit a BHP panel (please refer to chapter (E10) BHP HYDRAULIC PANEL on page 90) with its hydraulic plant and fittings (please refer to chapter (E96) BAMAR HYDRAULIC ACCESSORIES FOR BHP on page 94)

WEIGHTS AND DIMENSIONS

GFSIP PARTS DESCRIPTION		35 C	40 C	50 C	60 C
Threaded stud Ø	A mm	35	40	50	60
Upper tack flange Ø	B mm	280	320	360	400
External upper flange Ø	C mm	570	630	710	750
Internal lower flange Ø	D mm	470	530	610	650
Internal lower flange Ø	E mm	450	514	518	565
Body / cylinder external Ø	F mm	180	220	270	290
Below deck dimensions	G mm	920			
Tack swivel	H mm	450			
Inclination of spherical connection		10°			
Cylinder stroke	mm	150			
Cylinder max pressure	bar	350			
Hydraulic motor pressure	bar	175			
Electric motor power	volt	24 / 220 / 380			
Aluminium GFSIP weight	kg	On demand			
S.S. GFSIP weight	kg	On demand			

B75-B76

FOIL SECTION	GFSIP 35 C			GFSIP 40 C		
	BMG90	BMG110		BMG110	BMG145	
ROD #	-91	-115	-150	-170	-195	-220
LENGTH m						
	42,0	110330805514				
	45,0					110331815514

B77-B78

FOIL SECTION	GFSIP 50 C		GFSIP 60 C		
	BMG145		BMG185		BMG225
ROD #	-260	-320	-360	-430	-540
LENGTH m					
	55,0	110332826514			
	60,0			110333838014	



AMEL 54 - cantiere Amel - courtesy GdV

(B58-60-62)

STAINLESS STEEL HYDRAULIC FORESAIL FURLER FOR SUPER YACHTS

MIRABELLA V



Photo - Courtesy of Joseph Vittoria Jr.



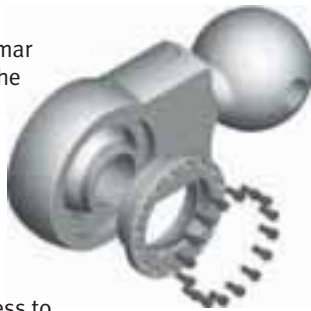
Photo - courtesy of Ron Holland Design

Bamar mechanisms for super sailing yachts have been created, machined and tested to work with extremely high dynamic and static loads. In september 2001, A.R.T.E. was chosen to manufacture the three foresail furling systems for "Mirabella V", the biggest sloop in the world, with a hull of 75 m and a stay of 87 m, commissioned by Mr. Joe Vittoria, and designed by Ron Holland.

Because of the huge dimensions of "Mirabella V", A.R.T.E. was engaged into looking for technical and mechanical innovations that would guarantee the sloop high speed, as well as the highest safety.

The furling systems are completely realized in stainless steel and other stainless alloys.

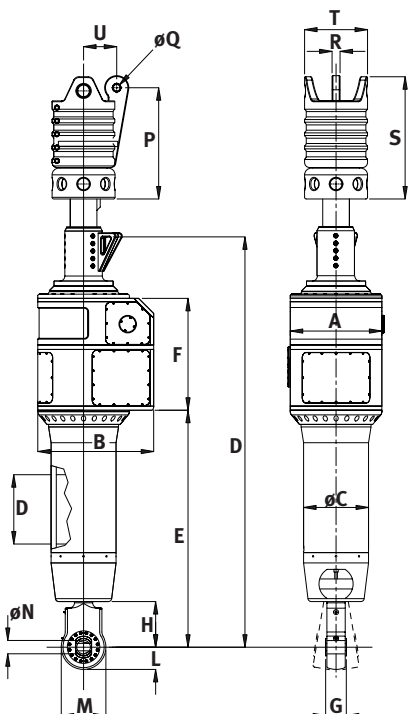
The biggest among the three furlers, Bamar BHFSS280, regulates the movements of the Jib. Its tack is at 2.600 m above deck; the diameter of the hydraulic cylinder is 430 mm and the diameter of the chain-plate pin is 100 mm.



The toggle consists of a double ball articulation, which guarantees a low stress to the part connecting the furler to the chain-plate.



Finally, the unique halyard swivel can be opened in order to check the ball bearings without having to dismantle the stay.



MOD.	GFI		
	60 CSS	70 CSS	80 CSS
ROD#	360	430	540
BMG	145-185	185	225
COD.	110306707500	110307718500	110308749000
A (mm)	530	580	630
B (mm)	646	696	746
C (mm)	350	390	430
D (mm)	2626	2464	2706
E (mm)	1585	1423	1665
F (mm)	672	672	672
G (mm)	115	125	145
H (mm)	262	274	291
L (mm)	119	134	149
M (mm)	238	268	320
ø N (mm)	70	80	100
O (mm) STROKE	750	550	750
P (mm)	576	668	749
Q (mm)	35	40	40
R (mm)	38	48	58
S (mm)	639	734	824
T (mm)	338	378	418
U (mm)	179	199	219
HALYARD SWIVEL (Kg)	71	100	133
MOTORIZATION (Kg)	1495	1586	1945

HYDRAULIC FORESAIL FURLER GF180 for Mirabella V the biggest sloop in the world 75 m



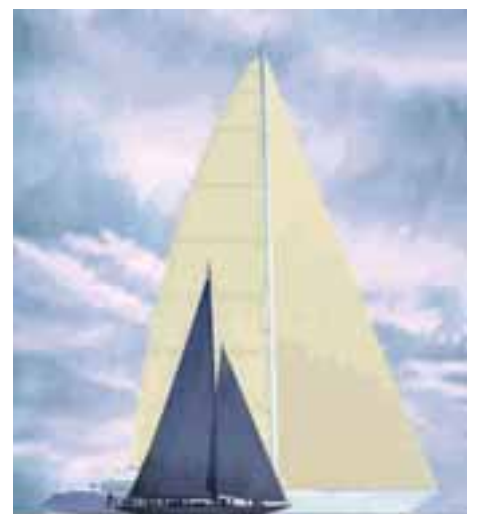
Luciano Rienzo and Vladimiro Zattini



Hull under construction



"Courtesy of Joseph Vittoria Jr."



Mirabella V with Shamrock V on the forefront

(B80) HIGH LOAD HALYARD SWIVEL



The free revolution of the foil sections around the forestay is made possible by the halyard swivel, which makes use of innovative design and technology, thus enabling a smooth rotation under the most severe halyard loads.

The swivel is machined from aluminium alloy treated with hardcote anodising allowing a high protection from wear and atmospheric agents. The internal part touching the foils is coated with a plastic

material that grants its smooth sliding along the foils, and protects it from localised wear when the sail is working.

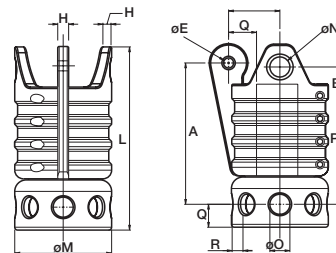
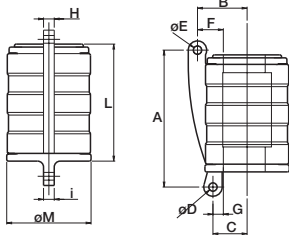
The innovative design allows for an easy and quick inspection of the internal ball bearings without taking the swivel off from the foils. This system avoids all the inconvenience that would be caused if the stay had to be taken down.

The high load resistance of the swivel is granted by Torlon® ball bearings distributed on more rows. These give an extremely advantageous ratio between weight and working load. The result is a positive gain in weight.

In the version used for foils BMG145, BMG185, and BMG225, the halyard swivel is predisposed for the connection of the sail clew through textile lines. Moreover, it is supplied with upper connections for anti-rotation lock.



HALYARD SWIVEL
BMG 52
BMG 60
BMG 70
BMG 80
BMG 90
BMG 110



HALYARD SWIVEL
BMG 145
BMG 185
BMG 225

HALYARD SWIVEL		52	60	70	80	90	110	145	185	225
CODES		901101715	901101716	901101717	901101718	901101719	901101720	901101730	901101732	901101735
A	mm	171,5	191,5	230,5	230,5	304,5	362,5	493	578	659
B	mm	61,5	70,5	83,5	86,5	105,5	123,5	179	199	219
C	mm	46,0	49,5	57,5	63,0	73,5	17,0	/	/	/
D	mm	11,0	11,0	13,0	13,0	15,0	17,0	/	/	/
E	mm	11,0	11,0	13,0	13,0	15,0	63,0	35	40	40
F	mm	31,5	35,0	43,5	41,5	55,0	25,5	97	95	118
G	mm	16,0	14,0	17,5	18,0	22,5	26,5	/	/	/
H	mm	14,0	14,0	18,0	22,0	22,0	26,0	38	48	58
I	mm	14,0	14,0	18,0	22,0	22,0	26,0	/	/	/
L	mm	145,0	165,0	197,0	197,0	267,0	321,0	639	734	824
M	mm	104,0	118,0	142,0	152,0	180,0	212,0	338	378	418
N	mm	/	/	/	/	/	/	70	70	70
O	mm	/	/	/	/	/	/	70	70	70
P	mm	/	/	/	/	/	/	479	559	644
Q	mm	/	/	/	/	/	/	83	90	90
R	mm	/	/	/	/	/	/	34	39	44
Weight	kg	2	2,5	5	5,5	10,5	27,5	69,5	98	131
Breaking load	t	3,3	4,2	5,1	6,0	7,0	9,8	20,0	30,0	40,0

(B82) FOIL WITH EXPANDING OPENABLE CONNECTOR



The foil sections can be easily assembled; they are light-weight and have a high torsion rigidity. They rotate around the forestay on Delrin® bushes.

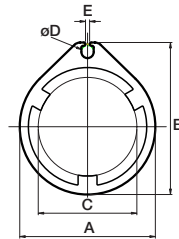
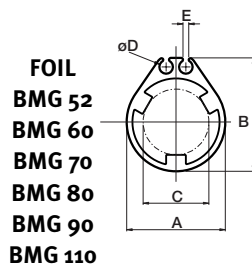
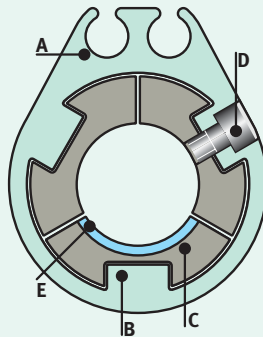
The connectors are manufactured from aluminium alloy and then treated with hardcote anodising. These splice-pieces, with their innovative “expanding” system, make the foils become a monolithic element, without stressing the screws that hold the splice pieces linked to the foils.

Bamar systems represent the ideal solution for all motorized equipment undergoing high torque loads.

The connector is made up of three aluminium parts and by Delrin® bushes composed by two half-bearings. Such system allows the installation of the foils both on wire stays with a swaged threaded terminal, and on rod stays (even after the terminal has been swaged).



- A. special section foil. It allows foils and connectors becoming a monolithic piece.
- B. “anti-rotation” key, integrated in the foil
- C. expanding connector made by three elements
- D. flush-mounted screws that allow the perfect connection between connector and foil (the screws do not take torque load)
- E. Delrin® bushes embracing the stay



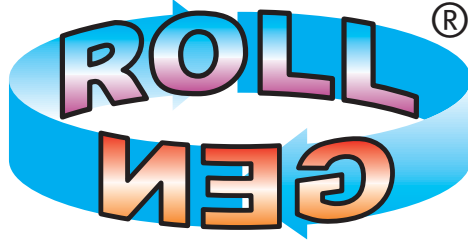
FOIL BMG		52	60	70	80	90	110	145	185	225
1x19 wire stay diameter (max)	mm	16	16	22	26	26	32	—	—	—
ROD # (max)		-40	-40	-60 *	-91	-91	-170	-320	-430	-540
A	mm	43	50	60	70	80	100	125	165	200
B	mm	52	60	70	80	90	110	144	185	225
C	mm	29	30	40	52	54	74	93	120	150
D	mm	6	8	8	8	9	9	15	15	18
E	mm	3	3,5	3,5	3,5	3	3	5	5	6
Weight	Kg/m	1,77	2,44	2,77	3,03	4,02	5,60	11,6	18,6	23,5
I X	cm ⁴	17	30	50	75	135	254	927	2456	4804
I Y	cm ⁴	11	20	34	52	100	194	615	1759	3240
Max torque	Kgm	62	95	142	199	328	530	1765	3851	5618

*only monothread



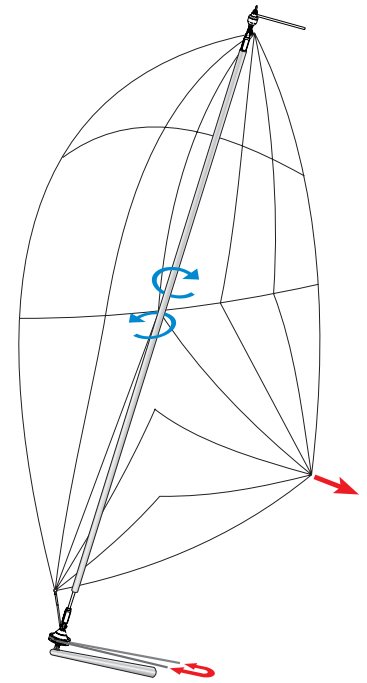
*BAMAR presents its new furling systems for asymmetric sails:
manual "RollGen", manual and motorized "RLG-CODE" furlers, "BWS".*

FURLING SYSTEMS FOR ASYMMETRIC SAILS



(C10) ROLLGEN
IS THE REVOLUTIONARY SYSTEM
TO FURL ASYMMETRIC SPINNAKERS.

- It may be used with all common types of asymmetric sails: (asymmetric spinnakers, gennakers, mps).
- The sail does not need any modifications.
- The sail does not have to be designed and built to fit RollGen.
- The use of RollGen does not affect the sailing performance efficiency of the sail.
- Once the sail has been unfurled, it may be used and adjusted freely.
- The furling and unfurling operation can be carried out comfortably and safely from the cockpit.
- The furling operation may be carried out at a moment notice, because RollGen is always in a working position.
- Once the sail has been furled in, RollGen may be left in position, and you may take it down later.
- It can be fitted in a few minutes after having cut the stay to measure, and the asymmetric sail may be quickly installed by using the shackles supplied.



HOW TO PREPARE IT...



- Bring on deck the bag containing RollGen and the sail furled around it.
- Connect the furling drum to the bowsprit or on deck with the shackle supplied, or by using a snap shackle, or by connecting it to the tack line.
- Connect the halyard to the top swivel and raise it.
- Pull the halyard in order to keep the RollGen stay under tension. This will prevent it from touching the forestay in order to allow the sail to be furled and unfurled without impediments.
- The endless line has to be laid towards the stern of the boat to control the system from the cockpit.
- Now, the asymmetric sail is ready for sailing and may be used with one or two sheets as usual.

HOW TO USE IT..

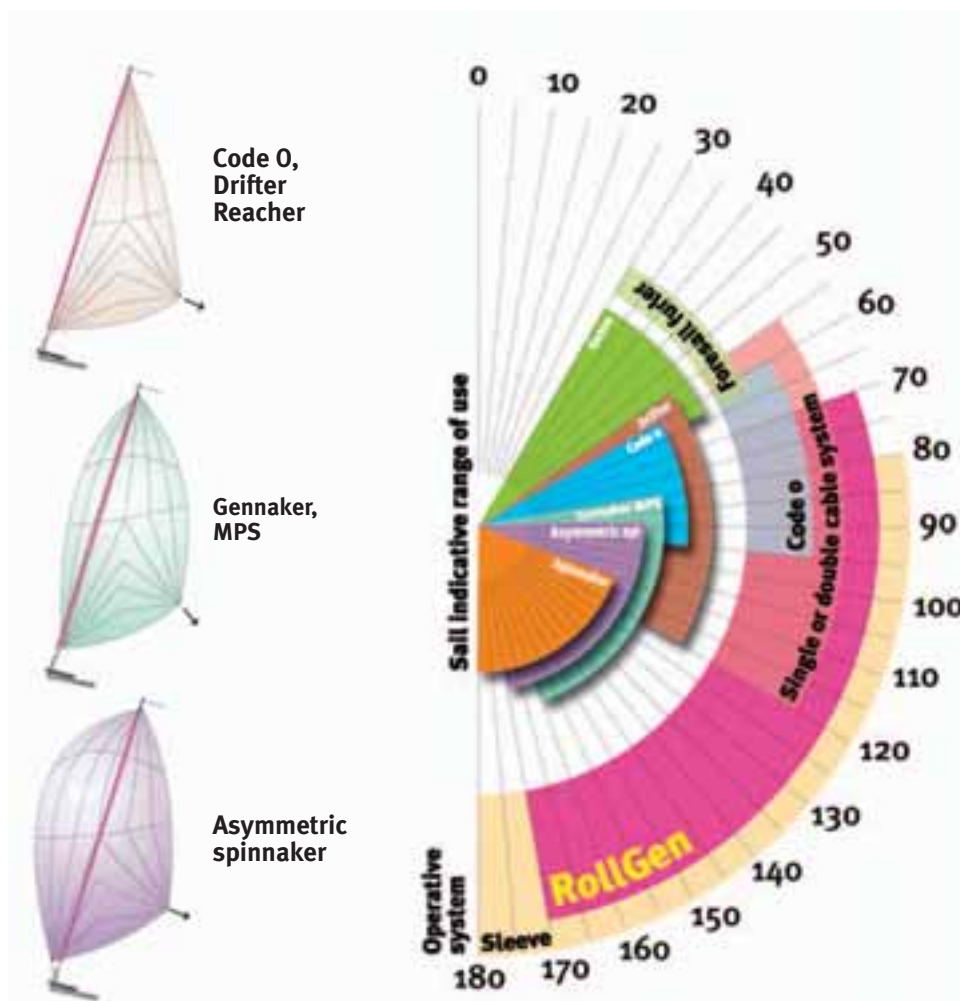


- Unfurl the sail: pull the sheet.
- Furl the sail: release the sheet and pull the endless line.
- When the sail is completely furled in, we suggest you partially wrap the sheets around it in order to stow it away easily.
- Once the sail is furled in, you may take down the halyard and put everything inside the sail's original bag.
- For a better performance of RollGen, we recommend using a bowsprit.

Comparison among different sails and operative systems.



When the sail is unrolled, RollGen does not interfere with any manoeuvre.



65

The operation can be carried out in 30 seconds!!!



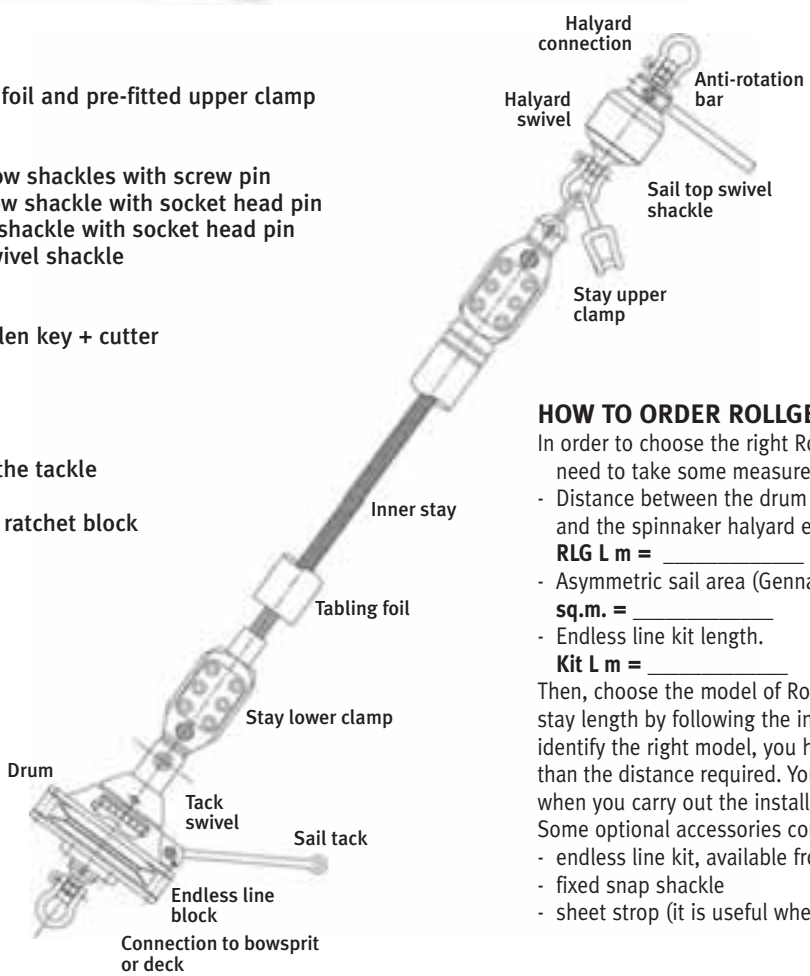


KIT ROLLGEN

- 1) stay with tabling foil and pre-fitted upper clamp
- 2) halyard swivel
- 3) anti-rotation rod
- 4) shackles: n° 3 bow shackles with screw pin
n° 1 bow shackle with socket head pin
n° 1 D shackle with socket head pin
n° 1 swivel shackle
- 5) lower clamp
- 6) tack rod
- 7) loctite liquid + allen key + cutter
+ tape + lighter
- 8) furling drum

- 9) strop to connect the tackle
- 10) tackle
- 11) endless line with ratchet block

- 12) snap shackle
- 13) sheet strop



Mod. RLG 20

HOW TO ORDER ROLLGEN:

In order to choose the right RollGen model and all its accessories you need to take some measures onboard.

- Distance between the drum connection (bow fitting / bowsprit head) and the spinnaker halyard exit on top of the mast (stay length).

RLG L m = _____

- Asymmetric sail area (Gennaker, MPS, asymmetric spinnaker)

sq.m. = _____

- Endless line kit length.

Kit L m = _____

Then, choose the model of RollGen furler needed for the sail area and stay length by following the indications of the table below. When you identify the right model, you have to choose the system slightly longer than the distance required. You will then adapt the stay length onboard when you carry out the installation by using the tools supplied.

Some optional accessories complete the RollGen equipment:

- endless line kit, available from 6 to 18 m long
- fixed snap shackle
- sheet strop (it is useful when gybing and when stowing the sail)

C10 Model	**max RLG stay lenght up to m	"light" asymmetric spinnaker max sail area sq.m.	Working load kg	Breaking load kg	Total weight kg	Drum diameter mm	Pin / Shackle ø mm	Endless line ø	code
ROLLGEN 08	9,00	110	900	1800	5,91	126	8	9	106000090000
	11,00	110	900	1800	6,71	126	8	9	106000110000
	13,00	110	900	1800	7,51	126	8	9	106000130000
	15,00	110	900	1800	8,31	126	8	9	106000150000
ROLLGEN 10	16,00	200	1500	2800	13,31	170	10	9	106001160000
	18,00	200	1500	2800	14,52	170	10	9	106001180000
	20,00	200	1500	2800	15,72	170	10	9	106001200000
ROLLGEN 20	21,00	400	2400	4000	23,53	210	12	9	106002210000
	23,00	400	2400	4000	25,13	210	12	9	106002230000
	25,00	400	2400	4000	26,73	210	12	9	106002250000
	27,00	400	2400	4000	28,33	210	12	9	106002270000

** RLG = Distance between spinnaker halyard exit and bowsprit terminal

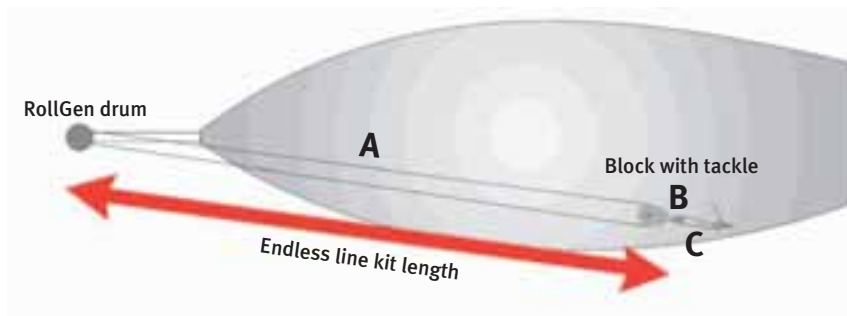
(C90) ACCESSORIES FOR ROLLGEN 08-10-20

ENDLESS LINE KIT

The kit includes:

- endless line
- ratchet block
- tackle

Ø 09 mm line kit length	code
6,0M	901120906
7,0M	901120907
8,0M	901120908
9,0M	901120909
10,0M	901120910
11,0M	901120911
12,0M	901120912
13,0M	901120913
14,0M	901120914
15,0M	901120915
16,0M	901120916
17,0M	901120917
18,0M	901120918



SINGLE COMPONENTS FOR ENDLESS LINE KIT

code	description
901190300	RLG08-10-20 TACKLE KIT
92074	RATCHET BLOCK (RECOMMENDED FOR RLG08-10-20)
207090900	Ø 9 MM SPECIAL RLG LINE PER METER (not spliced)



A+B+C

Complete endless line kit



B

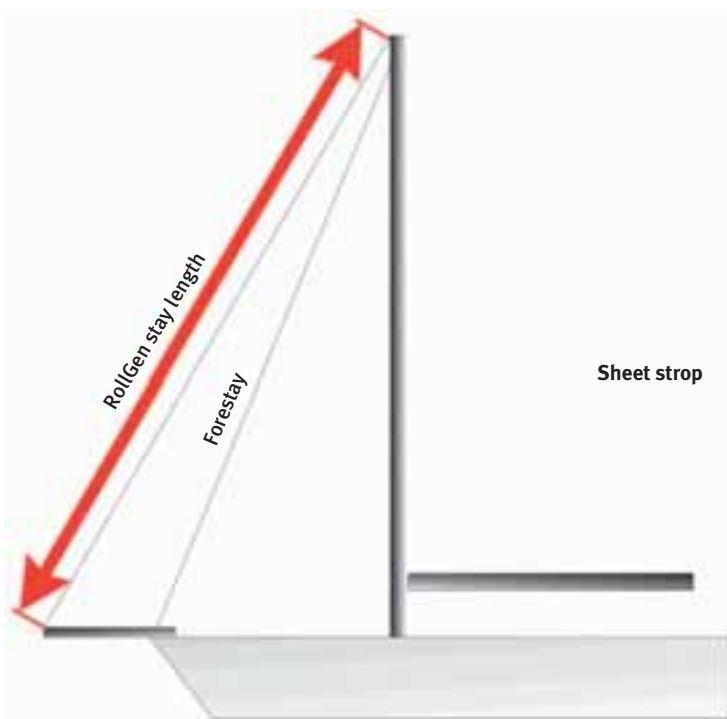
Ratchet block



C

Tackle kit

rollgen model	FIXED SNAP SHACKLE	SHEET STROP	Ø mm	Length m	BL kg
08	901130100	207110801	8	1,40	2000
10	901130200	207111002	10	2,75	3000
20	901130300	207111204	12	4,10	5000



Fixed snap shackle

Sheet strop





PERINI CUP 2004 - Borlenghi, Ferri, Campagnolo

69

DAME
Design award mets



WINNER 2004

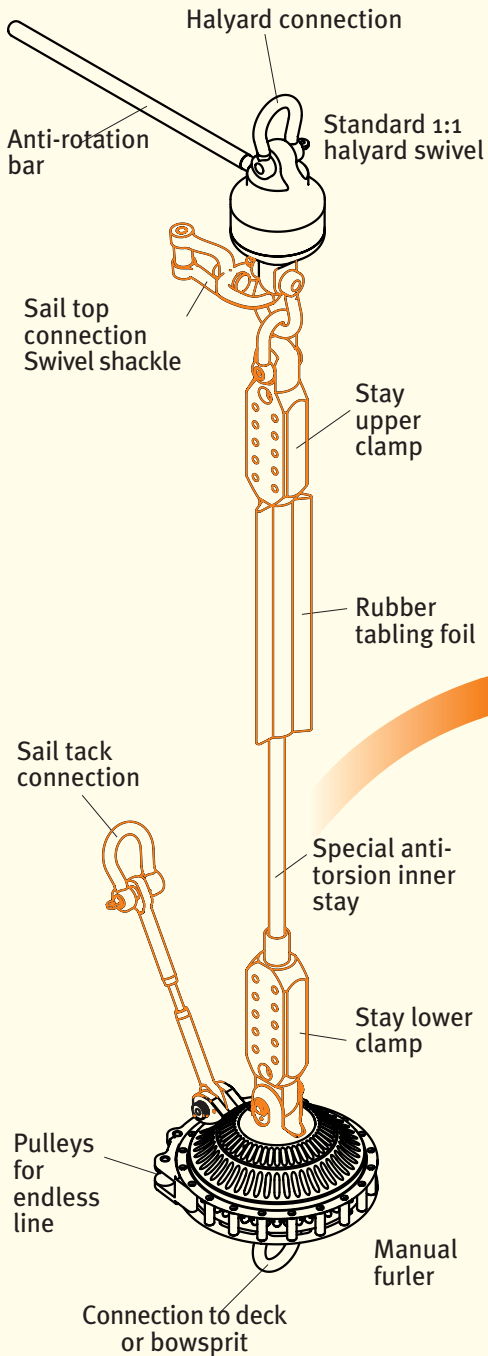
**ROLL
GEN**[®]
CODE

*The revolutionary system to furl non hoisted sails is now available
in two different configurations:
ROLLGEN and ROLLGEN-CODE,
both in the manual and motorized (electric or hydraulic) versions*

CONFIGURATION OF RLG-CODE SYSTEM

ROLLGEN

To furl free-flying non hoisted sails such as asymmetric sails, gennakers, MPS, reachers, etc..



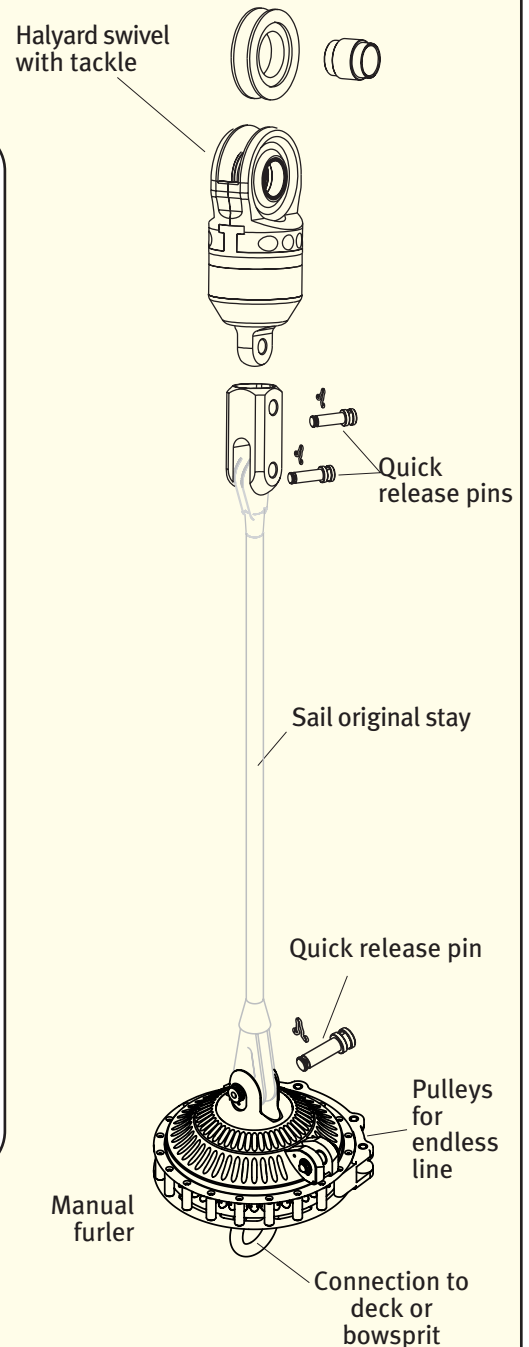
RollGen configuration includes:

- Halyard swivel
- Stay kit
- Sail tack connection
- Manual or motorized furler



CODE

To furl hoisted sails with luff integral to the stay, such as Code Zeros or drifters



Code configuration includes:

- Halyard swivel
- Stay connection with quick release pins
- Manual or motorized furler

STAY KIT

ASSEMBLY ARRANGEMENTS AMONG HALYARD SWIVELS AND FURLERS FOR BOTH CONFIGURATIONS



ROLLGEN

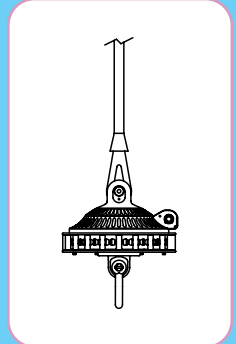
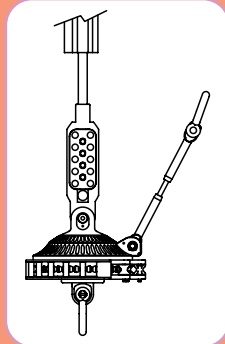
CODE

A
1:1 halyard swivel standard RollGen

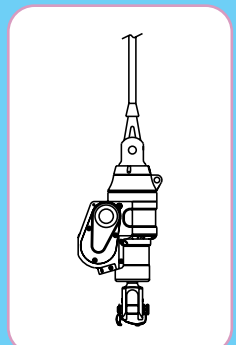
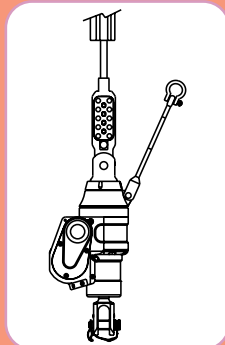
B
1:1 halyard swivel with predisposition for pulley and fork terminal for sail stay

C
1:2 halyard swivel with integrated pulley and fork terminal for sail stay

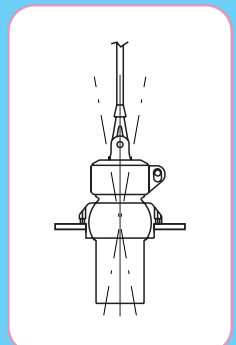
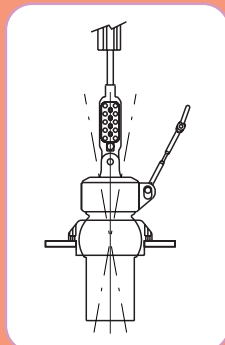
D
1:2 halyard swivel with separate block and fork terminal for sail stay



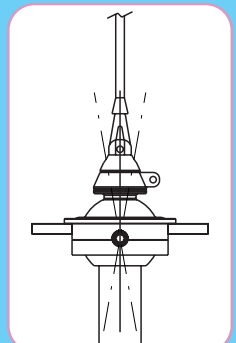
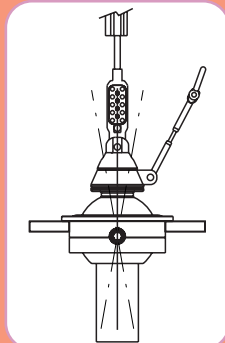
MANUAL FURLER



MEJ ELECTRIC FURLER



ELECTRIC FURLER WITH SELF-ALIGNING SPHERIC CONNECTION



HYDRAULIC FURLER WITH SELF-ALIGNING SPHERIC CONNECTION

(C12) MANUAL RLG-CODE FURLER

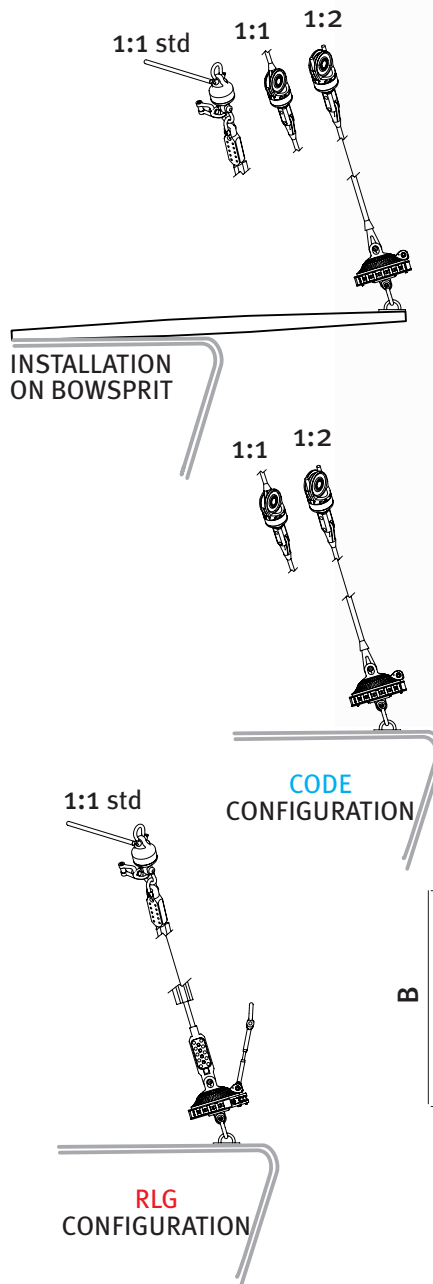
The manual RollGen range widens with the new RLG-CODE 30 and 40 used to furl asymmetric sails up to 1,000 sq.m.

The system is available in two different configurations:

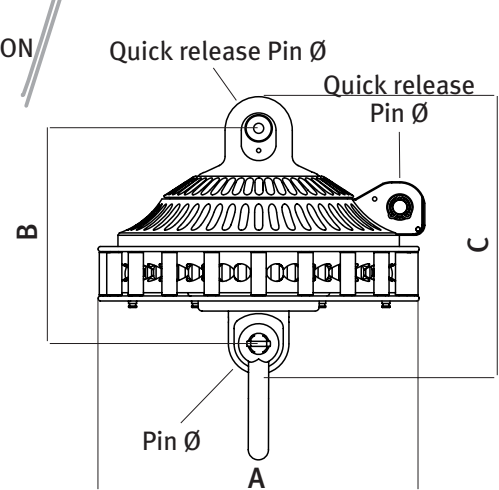
RollGen version, with the special stay; it allows you to furl all common types of free flying asymmetric sails of standard construction. The CODE version (stay not supplied), instead, may be used to furl sails, such as Code Os, drifters, etc., with luff integral to the stay.



RLG-CODE 30



RLG-CODE 30



MANUAL RLG-CODE

configuration	model	A (mm)	B (mm)	C (mm)	Pins Ø (mm)	Endless line Ø (mm)	Std h.swivel weight (Kg)	Drum weight (Kg)	Stay weight (Kg/m)	Working load (Kg)	Indicative max sail area (sq. m.)	Drum code
RLG CODE	RLG-CODE30	258	218	277	16	12	4,40	8,90	1,62	4000*	700**	901171300
RLG CODE	RLG-CODE40	318	215	277	20	12	6,00	-	1,80	6000*	1000**	901171400
										13000*	1000**	

* For the RollGen configuration we indicate the max working load on the stay kit
For the Code configuration we indicate the max working load on the furler and halyard swivel structures

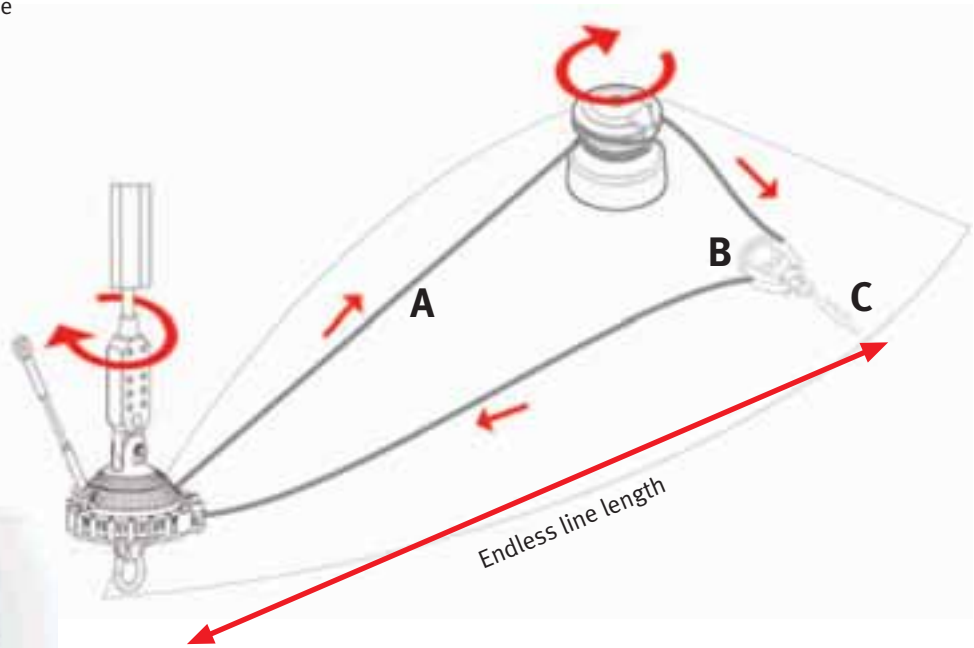
** For the RollGen configuration we refer to a light asymmetric spinnaker
For the Code configuration we refer to a drifter with its luff integral to the stay

(C91) Accessories for RLG-CODE 30-40

In order to make up the endless line kit for RLG-CODE furlers, you need to order single components:

Endless line - openable block - tackle

Ø 12 mm kit length	code
16,0M	207071216
17,0M	207071217
18,0M	207071218
19,0M	207071219
20,0M	207071220
21,0M	207071221
22,0M	207071222
23,0M	207071223
24,0M	207071224
25,0M	207071225
26,0M	207071226



description	code
RLG30-40 TACKLE KIT	901190400
RLG30-40 OFFSHORE BLOCK – WL 1600 Kg – BL 3500 Kg – Ø 75 mm	92841
Ø 12 MM SPECIAL LINE FOR RLG CIRCUIT PER METER (polyester – not spliced)	207091200

A

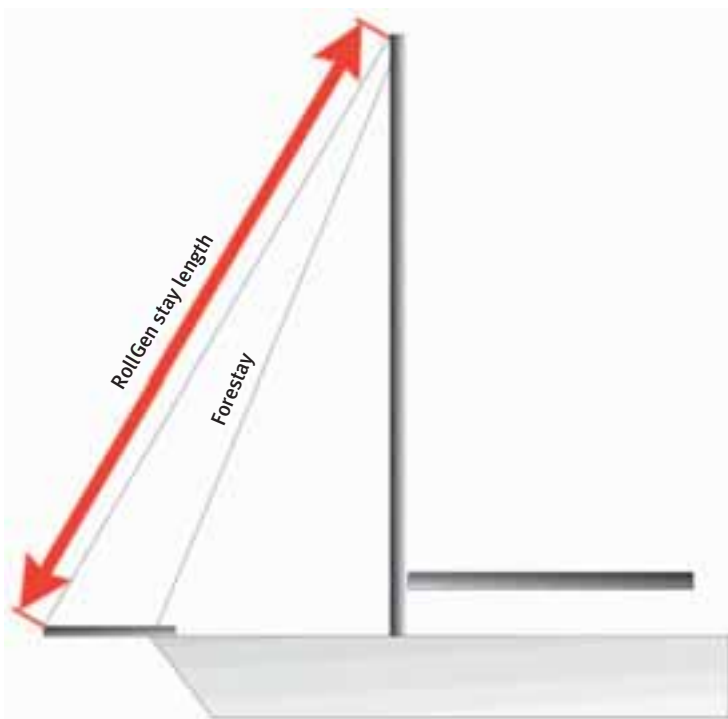
Special Ø 12 mm line

B

Openable block

C

Tackle kit



(C20) ELECTRIC RLG-CODE, MEJ VERSION

The motorized version of ROLLGEN furlers is now available. The electric MEJ version is to be fitted either on a chainplate on deck, or on a bowsprit. The system is available in two different configurations: RollGen version, with the special stay; it allows you to furl all common types of free flying asymmetric sails of standard construction. The CODE version (stay not supplied), instead, may be used to furl sails, such as Code Os, drifters, etc., with luff integral to the stay.

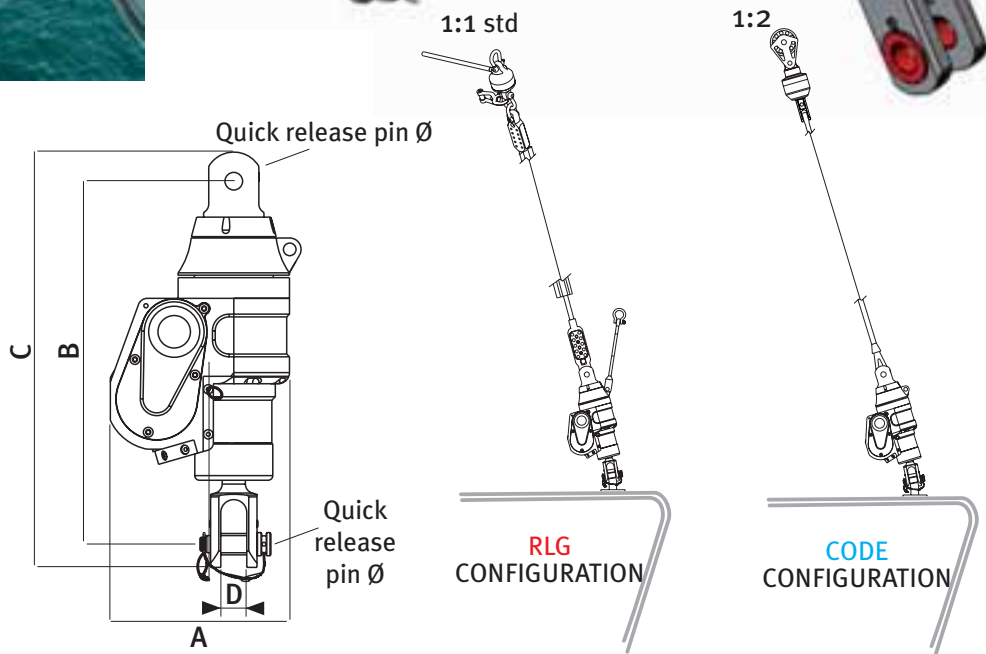


Vallicelli '55 C.N. YACHT 2000

MEJ 1.02 furler + RLG-CODE MEJ WL5



ELECTRIC RLG-CODE MEJ WL5



MEJ ELECTRIC RLG-CODE

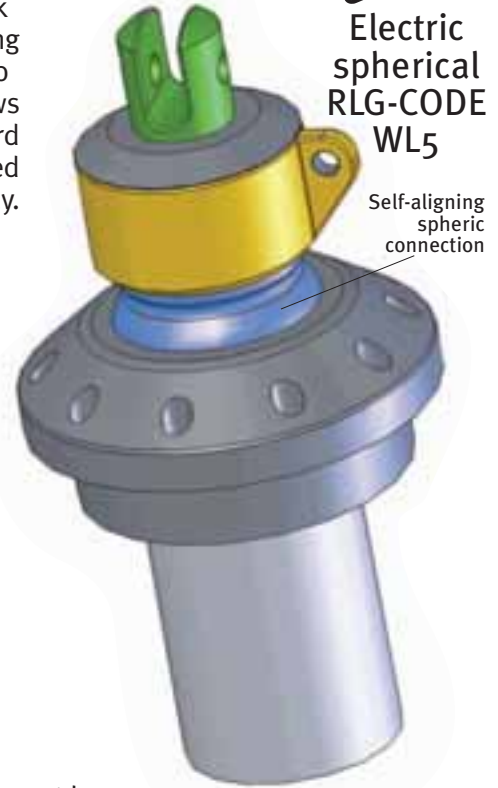
conf.	Model	A	B	C	D	Pins Ø	Std h.swivel weight (Kg)	Furler weight (Kg)	Stay weight (Kg/m)	Working load (Kg)	Indicative max sail area (sq. m.)	Motor power (W)	Max speed (rpm)	Motorization code	
		(mm)	(mm)	(mm)	(mm)	(mm)	(Kg)	(Kg)	(Kg/m)	(Kg)				12v	24v
RLG CODE	RLG-CODE MEJ WL5	193	407	457	22	19	1,9	15	1,31	2400*	400**	400	40	901062001	901062002

* For the RollGen configuration we indicate the max working load on the stay kit
For the Code configuration we indicate max working load on the furler and halyard swivel structures

** For the RollGen configuration we refer to a light asymmetric spinnaker
For the Code configuration we refer to a drifter with its luff integral to the stay

(C23) ELECTRIC RLG-CODE WITH SPHERIC CONNECTION

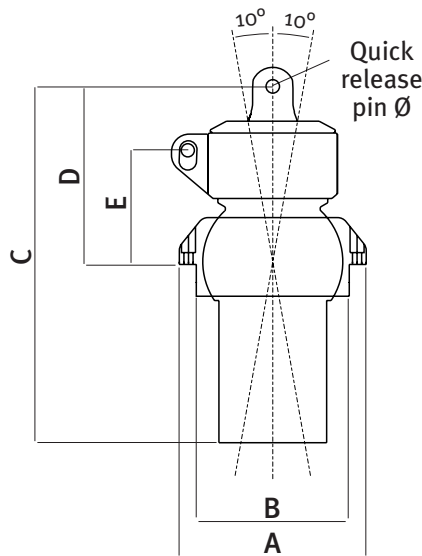
The motorized version of ROLLGEN furlers is now available. The electric “spherical” version, designed for a “structural” flush-deck installation, makes use of that special “self-aligning” construction enabling the stay to keep always the right angle. The system is available in two different configurations: RollGen version, with the special stay; it allows you to furl all common types of free flying asymmetric sails of standard construction. The CODE version (stay not supplied), instead, may be used to furl sails, such as Code Os, drifters, etc., with luff integral to the stay.



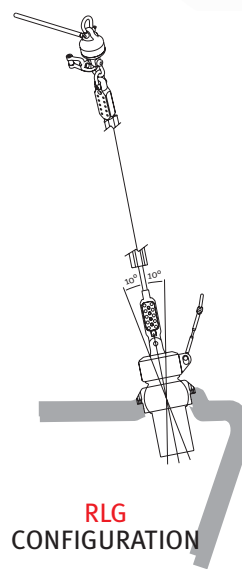
GFI 25 hydraulic foresail furler + RLG-CODE SE WL5



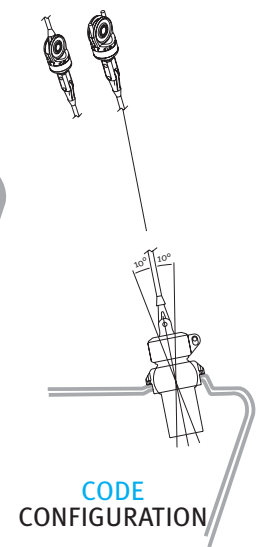
S/Y Rubin Lady 28 M. gennaker 570 sq.m.



1:1 std



1:1 1:2



ELECTRIC RLG-CODE WL 5 WITH SPHERIC CONNECTION

conf.	Model	A	B	C	D	E	Pins Ø	Std h.swivel weight (Kg)	Furler weight (Kg)	Stay weight (Kg/m)	Working load (Kg)	Indicative max sail area (sq. m.)	Motor power (W)	Max speed (rpm)	Motorization speed	
		(mm)	(mm)	(mm)	(mm)	(mm)									12V	24V
RLG CODE	RLG-CODE SE WL5	178	142	335	178	121	12	1,90	-	1,31	2400* 5000*	400**	400	100	901063001	901063002

* For the RollGen configuration we indicate the max working load on the stay kit
For the Code configuration we indicate max working load on the furler and halyard swivel structures

** For the RollGen configuration we refer to a light asymmetric spinnaker
For the Code configuration we refer to a drifter with its luff integral to the stay

(C30) HYDRAULIC RLG-CODE WITH SPHERIC CONNECTION

The motorized version of ROLLGEN furlers is now available. The hydraulic “spherical” version, designed for a “structural” flush-deck installation, makes use of that special “self-aligning” construction enabling the stay to keep always the right angle. The system is available in two different configurations: RollGen version, with the special stay; it allows you to furl all common types of free flying asymmetric sails of standard construction. The CODE version (stay not supplied), instead, may be used to furl sails, such as Code Os, drifters, etc., with luff integral to the stay.

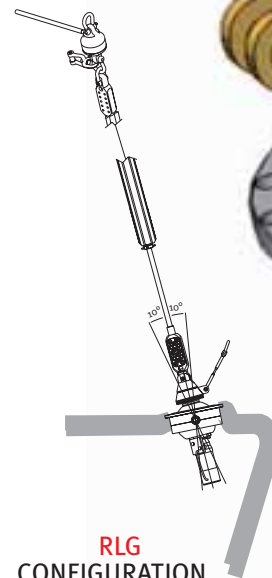


Perini Navi 40 m - Gemmaker 800 mq

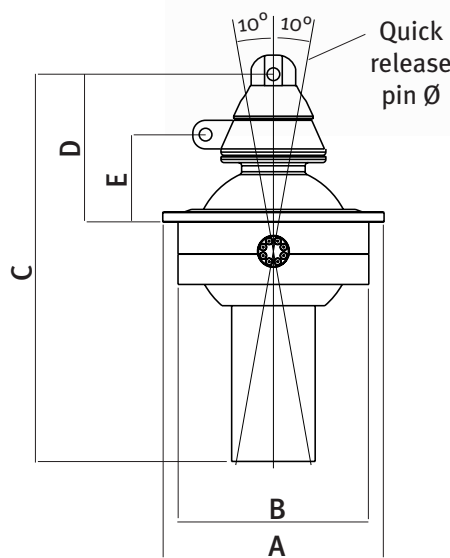
GFI 35 hydraulic foresail furler + RLG-CODE SI WL10



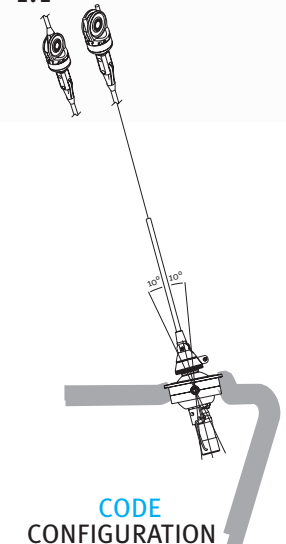
1:1 std



RLG
CONFIGURATION



1:1 1:2



CODE
CONFIGURATION

HYDRAULIC SPHERIC RLG-CODE WL10

conf.	Model	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	Pins Ø (mm)	St. h.swivel weight (kg)	Furler weight (kg)	Stay weight (Kg/m)	Working load (kg)	Indicative max sail area (sq. m.)	Oil pressure (bar)	Speed range (rpm)	Motorization code
RLG CODE	RLG-CODE SI WL10	252	212	440	223	129	19	4,40 (6,00)	23,00	1,62 (1,80)	4000 (6000)* 10000*	700 (1000)**	140	100 - 200	901803100
RLG CODE	RLG-CODE SI WL10/30°	350	300	653	234	138	19	4,40 (6,00)	50,00	1,62 (1,80)	4000 (6000)* 10000*	700 (1000)**	175	62,5 - 250	901803200
RLG CODE	RLG-CODE SI WL20	360	300	646	225	120	26	6,00	62,00	1,80	6000* 20000*	1000 (1500)**	175	80 - 240	901803300
RLG CODE	RLG-CODE SI WL40	490	400	845	355	185	40	-	-	-	40000*	-	130	63 - 189	901803400

* For the RollGen configuration we indicate the max working load on the stay kit
For the Code configuration we indicate max working load on the furler and halyard swivel structures

** For the RollGen configuration we refer to a light asymmetric spinnaker
For the Code configuration we refer to a drifter with its luff integral to the stay

HOW TO PLACE AN ORDER:

In order to choose the right RLG-CODE furler model and all its accessories you need to take some measures onboard.

- Distance between the drum connection (bow fitting / bowsprit head) and the spinnaker halyard exit on top of the mast (stay length).

RLG L m = _____

- Asymmetric sail area (Gennaker, MPS, asymmetric spinnaker) sq. m = _____

- Endless line kit length (only for manual version). Kit L m = _____

Then choose the model of RLG-CODE furler, and integrate it with the right halyard swivel for the version required, and stay (if you require a RollGen version)

Some optional accessories complete the RLG-CODE furler equipment:

- For manual RLG-CODE 30-40 endless line kit, please refer to page 73

- For electric models, MEJ WL5 + SE WL5 12-24 V electric accessories, please refer to page 46

- For hydraulic models, SI WL10/20/40 hydraulic accessories, please refer to page 104

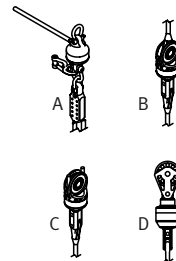
CHOICE OF THE RLG-CODE FURLER

		MODEL	CODE
C12	MANUAL	30 WL 8,0T	901171300
"	"	40 WL 13,0T	901171400
C20	ELECTRIC	MEJ WL 5,0T 12V	901062001
"	"	MEJ WL 5,0T 24V	901062002
C23	ELECTRIC	SE WL 5,0T 12V	901063001
"	"	SE WL 5,0T 24V	901063002
C30	HYDRAULIC	SI WL 10,0T S	901803100
"	"	SI WL 10,0T 30°	901803200
"	"	SI WL 20,0T	901803300
"	"	SI WL 40,0T	901803400



CHOICE OF THE HALYARD SWIVEL

		MODEL	CODE
C60	STANDARD	20 STD 1:1 (A)	308043000
"	"	30 STD 1:1 (A)	308044000
"	"	40 STD 1:1 (A)	308045000
"	WITHOUT INTEGRATED PULLEY	30 SPI 1:1 (B)	308044001
"	"	40 SPI 1:1 (B)	308045001
"	WITH INTEGRATED PULLEY	30 CPI 1:2 (C)	308044002
"	"	40 CPI 1:2 (C)	308045002
"	WITH SEPARATED BLOCK	30 CBS 1:2 (D)	308044003
"	"	40 CBS 1:2 (D)	308045003



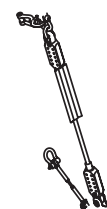
HALYARD SWIVEL FORK WITH QUICK RELEASE PINS, FOR CODE STAY

	HALYARD SWIVEL MODEL	CODE
C61	RLG 20	901080220
"	RLG 30	901080230
"	RLG 40	901080240



CHOICE OF THE STAY

		MODEL	CODE
C62	INNER STAY + RUBBER GAITHER + CLAMPS	MEJ 1.02 L= 21,0 M (KIT 20)	901712021
"	"	30 L= 28,0 M (KIT)	901713228
"	"	40 L= 32,0 M (KIT)	901711433
"	"	EXTRA 20 L= 1,0 M	901721200
"	"	EXTRA 30 L= 1,0 M	901721300
"	"	EXTRA 40 L= 1,0 M	901721400



(C40) BWS ELECTRIC FURLER FOR GENNAKER

Its shape has been designed in order to occupy as little room as possible vertically.

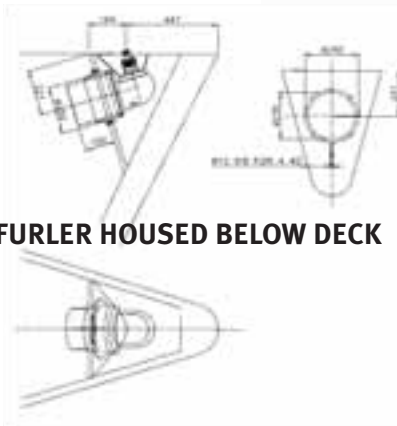
Light-weight: it is made of aluminium machined with CNC machines. It is wear resistant, thanks to hardcote anodising and a Teflon bath.

Fast: to be used on boats needing a performing foresail. Its high speed was calculated in order to simplify and speed up tacking.

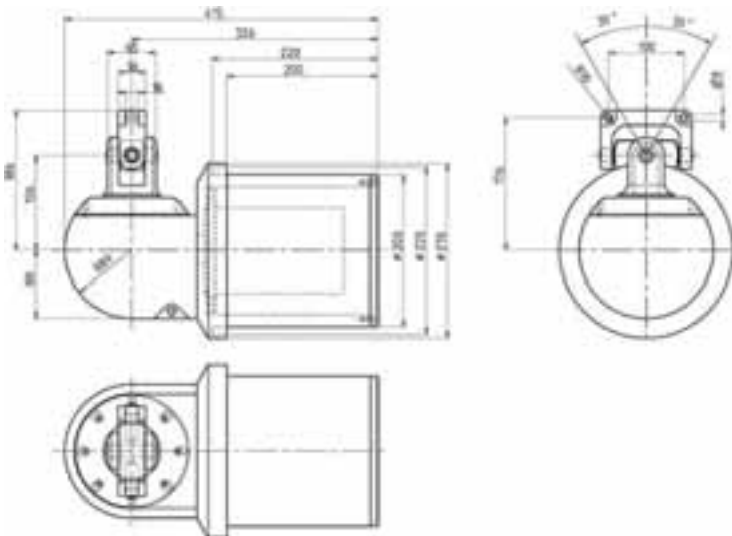
Application: though originally designed to be fitted on a bowsprit, it may easily be installed below deck as well.

Manual emergency: not needed, as the sail is not hoisted on furling foils but armed on parallel mobile stays. Nevertheless, for those who want it, it is possible to add the application on demand.

Water resistant: modern technology gives us the possibility of manufacturing mechanisms and use electric motors that do not fear water.



FURLER HOUSED BELOW DECK



TECHNICAL FEATURES

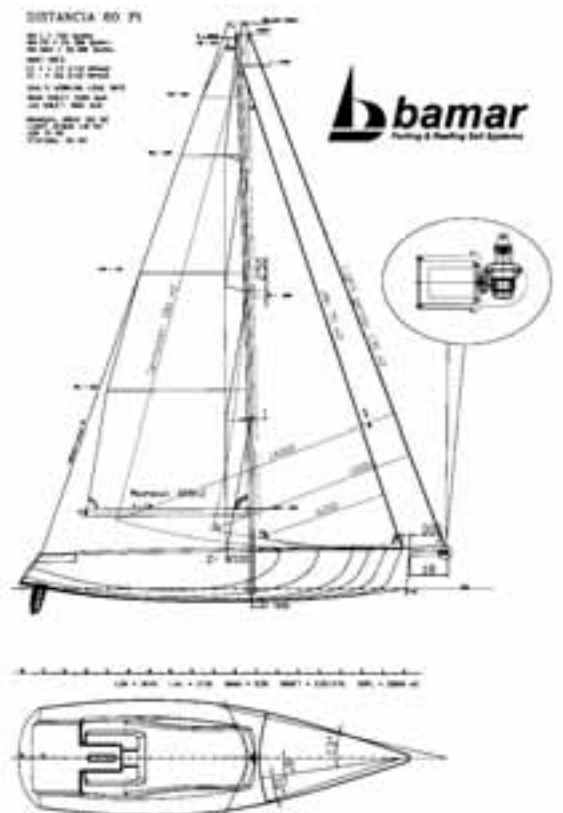
Revolutions per minute	rpm	100
Medium speed (indicative)	m/min	15
Electric power supply	Volt	24
Weight	kg	24
Max ampere absorption	A	50



FURLER WITH SPECIAL MANUAL EMERGENCY DRIVE (on demand)



FURLER INTEGRATED ON A BOWSPRIT



Model
200

Code
111200000000



The application of a motorization on existing winches helps boat owners sailing with short-handed crew.

WINCH MOTORIZATIONS

Almost all winches present on the market can be motorized (Harken, Lewmar, Barlow, Antal, Bariant, Andersen, etc...). However, we reserve the possibility to send back the winch without motorizing it, after it has been checked in our workshop.

The motorizations equip the winch with either 1 or 2 speeds. This depends on the type of internal reduction gear on the manual winch itself, and not on the type of motorization supplied by A.R.T.E. For example, recent models from Lewmar have 2 speeds in the manual version, but keep only one when they are motorised.

Winches keep 2 speeds only when we can connect our motorization to the central axis.

If the manual winch is a 3-speed one, thus supplied with a manual selector, we can motorize it and keep the 3 speeds (the third speed will be manually selected on the winch).

Winches with "coffee grinders" may be motorized too. In such case the motorization will be supplied only after having designed a custom application.

(D10) ELECTRIC MOTORIZATION OF EXISTING WINCHES

The electric motorization is available for either 12 or 24-volt installations. The user may control the winch by means of two watertight switches in order to select the best speed depending on the load.

The winch can also be used manually at any time, thanks to a knob that disconnects the motor. This knob is placed on the lower part of the motorization under deck.

Electric motors are mounted horizontally.

The standard electric winch motorization kit includes:

- reduction gear
- electric motor
- disconnecting mechanism for manual emergency use
- winch handle clutch cap

Optional material:

- Electric accessories
- Axis extension



Winch with one-speed motorization



Winch with 2-speed motorization

HOW TO PLACE THE ORDER:

1. The choice of the motorization depends on the reduction ratio of the manual winch. This ratio is identifiable from the number that can be found near to the winch handle clutch.
2. each winch needs accessories for the electric plant (see section **B40-B41** on page 47 for further information)
3. check the thickness of the deck.

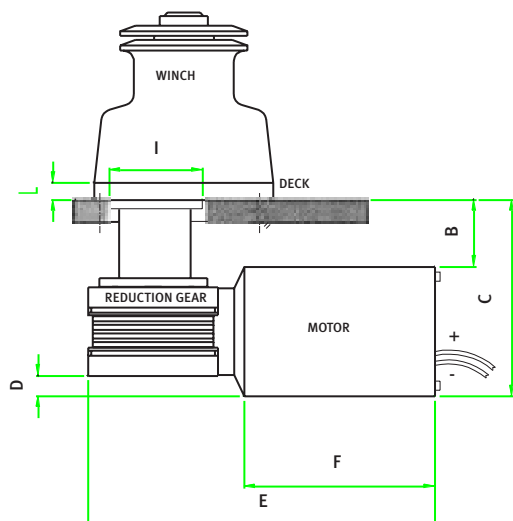
Model	WATT	WINCH POWER	CODE	
			12V	24V
MWE 700	700	43-48	120004020401	120104020101
MWE 1000	1000	50-66	120005030601	120105030301
MWE 1500	1500	67-97	120008040801	120108040501
MWE 2000	2000	... 98	120010050901	120110050701

WINCHES THAT MAY NOT BE MOTORIZED ON THE CENTRAL AXIS

The motorization operates on one speed only, the other speeds can be manually operated

Dimensions of 1 speed motorizations

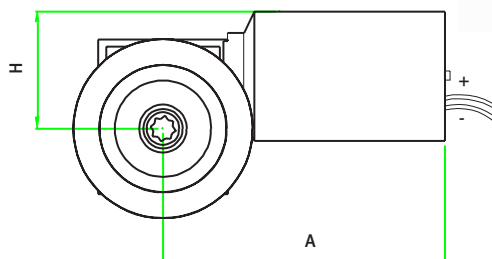
Mod	MWE 700	MWE 1000	MWE 1500	MWE 2000
A mm	250	250	250	on demand
B mm	110	110	110	on demand
C mm	220	220	220	on demand
D mm	**	**	**	on demand
E mm	300	300	300	on demand
F mm	170	170	170	on demand
G mm	**	**	**	on demand
H mm	**	**	**	on demand
I mm	70	70	70	on demand
L mm	14	14	14	on demand
Watt	700	1000	1500	2000



View of the winch base



The reduction gear connects onto an axis which is NOT central. Therefore the winch keeps one speed only (the direct one). The second speed can be manually operated



WINCHES THAT MAY BE MOTORIZED ON THE CENTRAL AXIS

The motorization operates the original speeds of the winch

View of the winch base

The reduction gear connects onto the central axis. Therefore the winch keeps its original speeds when motorized.

Dimensions of 2 speed motorizations

Mod	MWE 700	MWE 1000	MWE 1500	MWE 2000
A mm	255	255	255	on demand
B mm	63	63	63	on demand
C mm	176	176	176	on demand
D mm	24	24	24	on demand
E mm	310	310	310	on demand
F mm	170	170	170	on demand
G mm	60	60	60	on demand
H mm	105	105	105	on demand
I mm	100/120	100/120	100/120	on demand
L mm	14	14	14	on demand
Watt	700	1000	1500	2000

NOTE: should the deck be thicker than the standard, we may manufacture custom extensions for motor axis.

AXIS EXTENSION	CODE
EXTRA 100 mm	325010100
EXTRA 200 mm	325010200
EXTRA 300 mm	325010300

Axis extensions: 200 mm (left) and 300 mm (right)

ELECTRIC ACCESSORIES

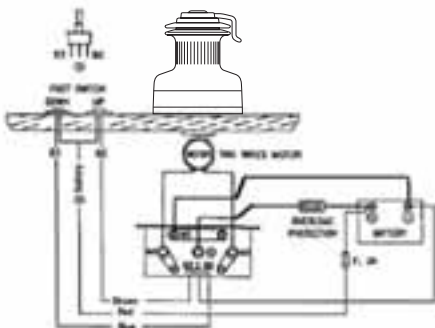
Electric winches require adequate switches, solenoids, and thermal magnets that have to be chosen depending on the type of winch, voltage, and the number of winches to be controlled (see section B40-B41 on page 46).

SWITCHES - you need two switches for each winch, one for each speed.

REVERSING SOLENOID - needed to operate motors fitted on 2- or 3-speed winches. Each solenoid controls only one winch, therefore please bear in mind that boats with more than one motorized winch need more solenoids.

SOLENOID - needed to operate motors fitted on 1-speed winches. Each solenoid controls only one winch, therefore please bear in mind that boats with more than one motorized winch need more solenoids.

THERMAL MAGNET - needed for each electric winch motorization. Automatic and watertight, it protects the system from overloads.



Classic plant for 2-speed electric Winch motorization with bipolar motor.



FOOT SWITCH
Cod. 903090000

REVERSING SOLENOID
12V - Cod. 903030003
24V - Cod. 903030004



SOLENOID
12V - Cod. 903040003
24V - Cod. 903040004



THERMAL MAGNET



AMPERE	FOR WINCH MODEL	Code
40	700-24V	903010003
75	700-12V; 1000-24V; 1500-24V	903010004
100	1000-12V	903010005
150	1500-12V	903010006

(D20) HYDRAULIC MOTORIZATION FOR EXISTING WINCHES

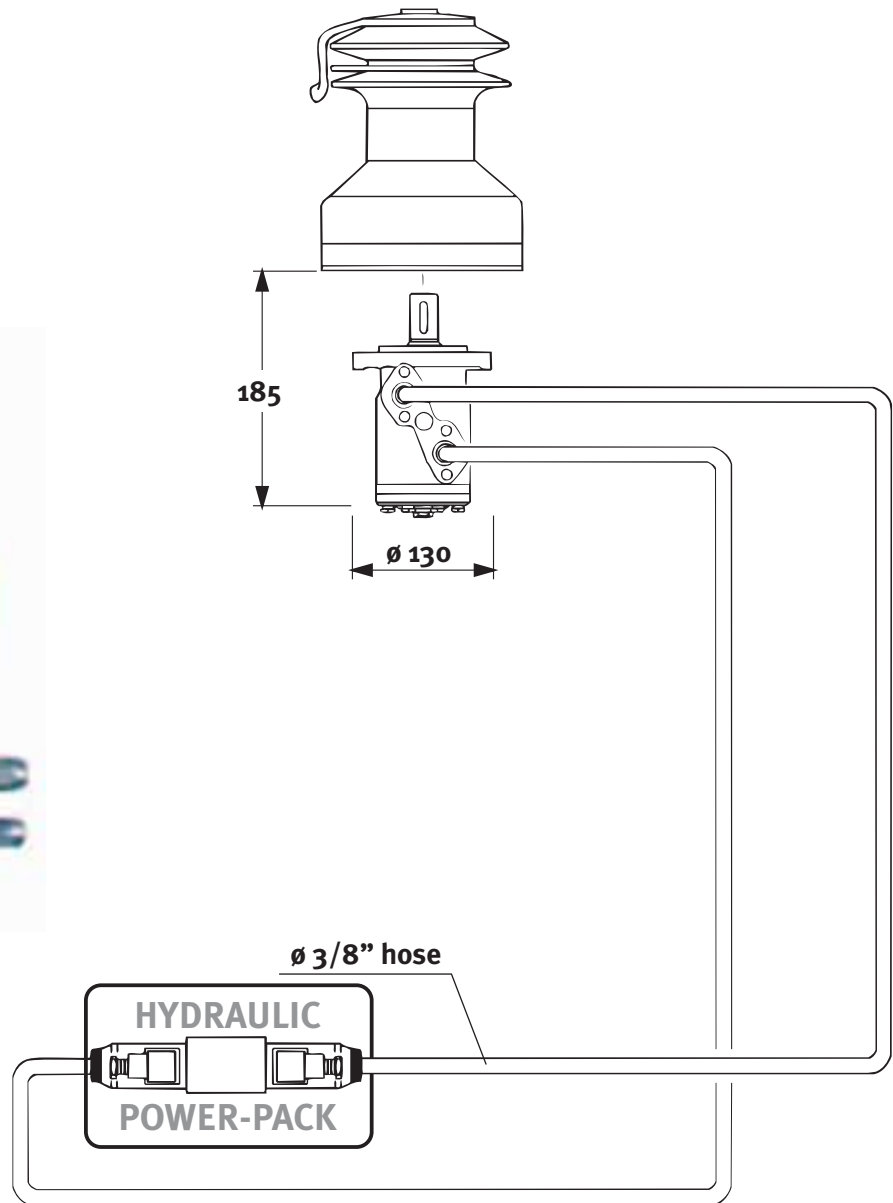
Hydraulic motorizations are installed vertically. They are manufactured with standard components, in order to make maintenance possible anywhere around the world. The boat's hydraulic power-pack can be used to power these motorizations if it has the parameters needed for a correct performance. In order to check this possibility, you need to know the power-pack's flow and pressure in bars.

The standard hydraulic winch motorization kit includes:

- reduction gear
- hydraulic motor
- winch handle clutch cap

Optional material:

- accessories for hydraulic plant
- Axis extension



HOW TO PLACE THE ORDER:

1. The choice of the motorization depends on the reduction ratio of the manual winch. This ratio is identifiable from the number that can be found near to the winch handle clutch.
2. each winch needs 2 switches (see section **B41** for foot switches), 3/8' hydraulic hoses and possibly a hydraulic power-pack.
3. check the thickness of the deck.

MODEL	WINCH POWER	CODE
MWHD 32	... 40	120201010102
MWHD 80	43-48	120202020201
MWHD 100	50-66	120203030201
MWHD 160	67-74	120204040201
	75-97	120205050201
	... 98	120205060201

AXIS EXTENSION	CODE
EXTRA 100 mm	325020100
EXTRA 200 mm	325020200
EXTRA 300 mm	325020300



Innovative range of custom “push & pull” cylinders for the control of running and standing rigging, aft lockers, etc...

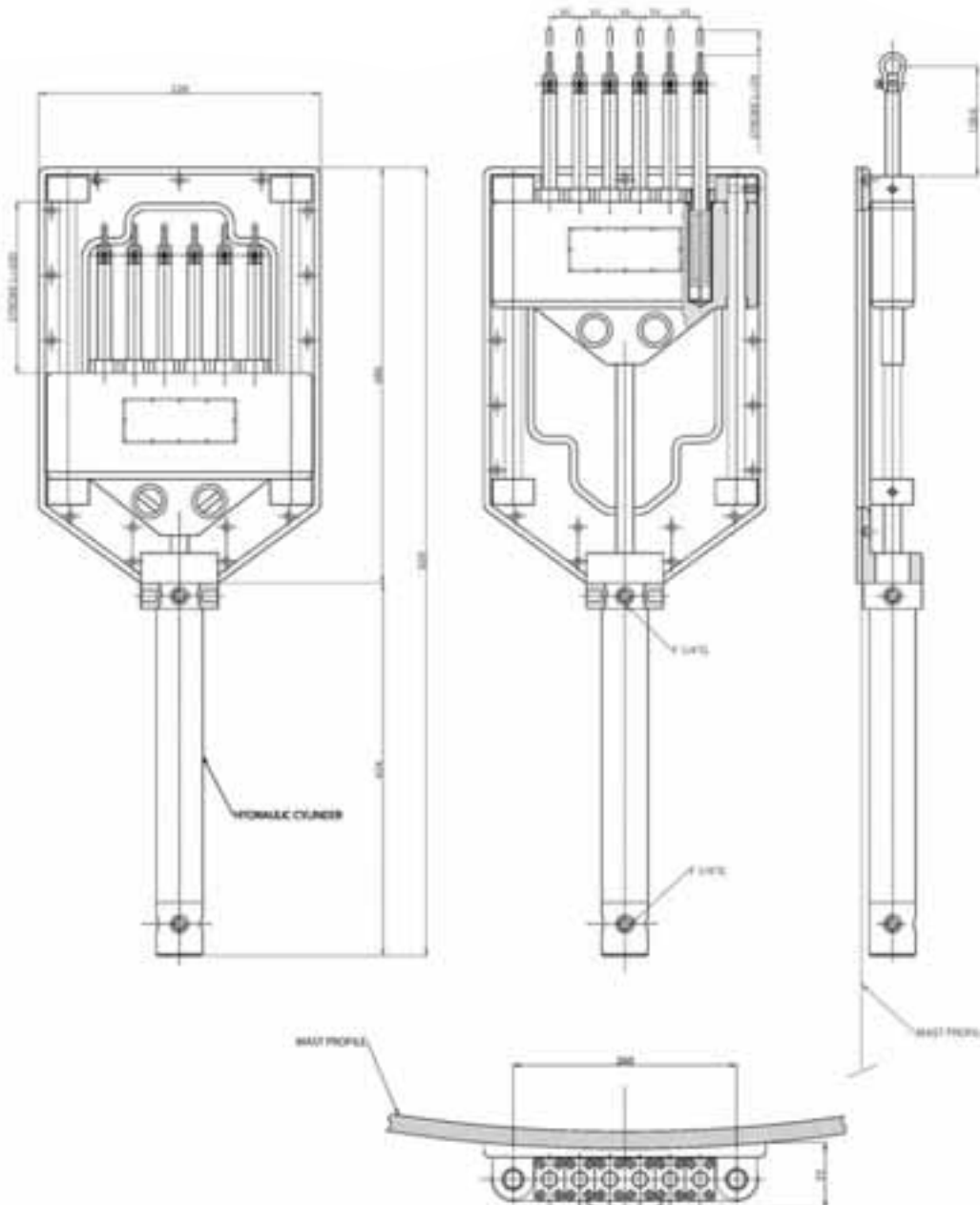
CUSTOM CYLINDERS

(E01) CUSTOM CYLINDERS

Custom cylinder for the control of pins that unlock mainsail cars for MIRABELLA V

It is a "custom" made system supplied to the super yacht MIRABELLA V. It is made up by a hydraulic cylinder controlling six studs that through textile ropes release the pins locking the mainsail cars.

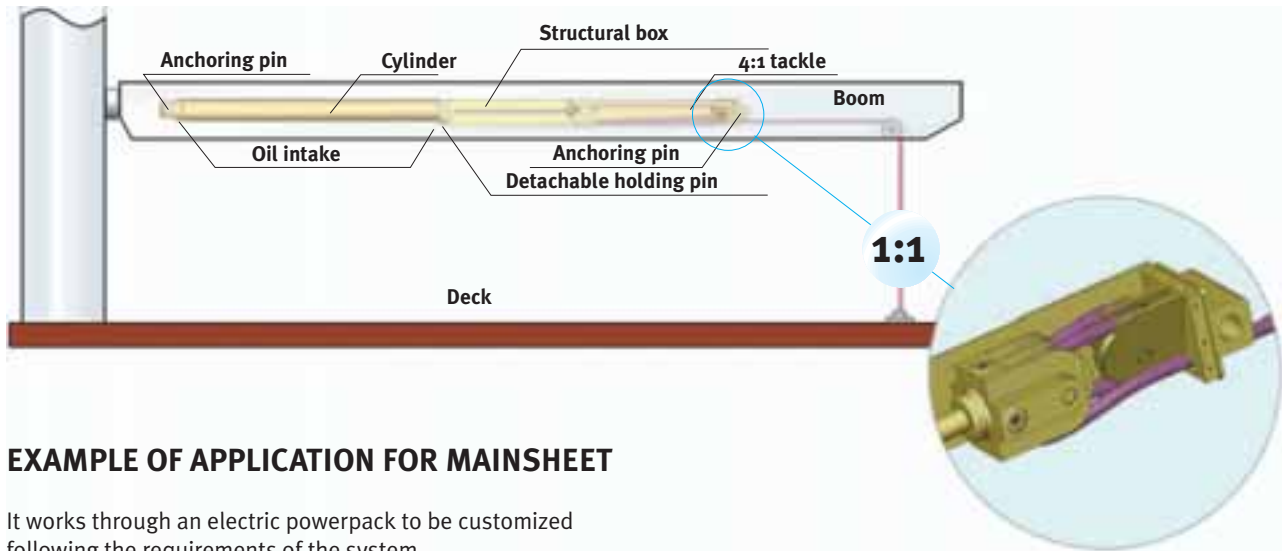
A.R.T.E. is therefore able to manufacture "custom" cylinders studied in order to satisfy all exigencies onboard.



(E02) HYDRAULIC CYLINDER WITH TACKLE “BPC”

It is a tackle system operated by a “push and pull” hydraulic cylinder. It is to be fitted inside the boom to control the mainsheet, but it may also be used for other applications. The 4:1 tackle allows you to stow a quantity of line that is four times longer than the cylinder’s stroke.

This system’s main characteristic is its simple anchoring method: two terminals positioned on the extremities of the tackle cylinder. This avoids the construction of the complex structure needed to lock and hold the traditional system, which is made by a special stroke cylinder with standard connections, a tackle and its tackle-guide.



EXAMPLE OF APPLICATION FOR MAINSHEET

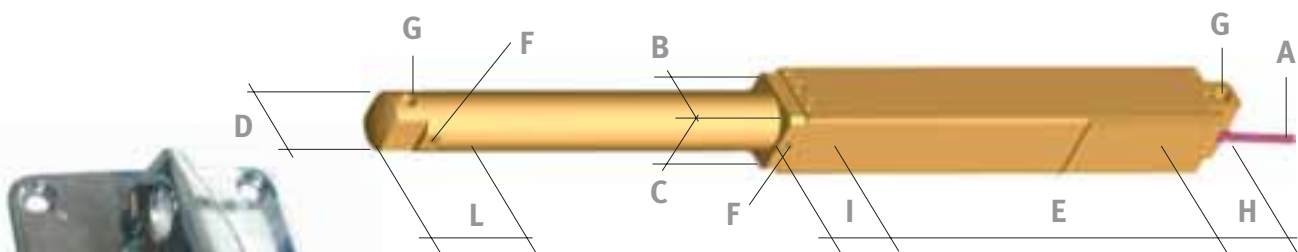
It works through an electric powerpack to be customized following the requirements of the system.

HOW TO PLACE THE ORDER:

1. supply the line diameter
2. length of line to be stowed
3. direct entry of line (1:1 ratio), or through a tackle (e.g. 2:1 ratio block)

BPC TECHNICAL CHARACTERISTICS

MODEL	CODE OF CYLINDER +TACKLE WITH 1 m STROKE	EXTRA STROKE 100 mm	1:1 EXIT PULL AT 220 BAR kg	BREAKING LOAD AT 220 BAR kg	1:4 CYLINDER PULL AT 220 BAR kg	LINE MAX Ø mm A	TACKLE BOX DIMENSION mm B x C	PISTON EXTERNAL Ø mm D	MAX STROKE mm E	SHEAVE Ø mm	OIL INTAKE THREAD F	ANCHORING PINS G
1 BPC100	104500112010	104510110000	1476	2600	7380	12	100 x 100	90	2000	85	3/8"	25
2 BPC120	104500214020	104510210000	1900	3230	9500	14	120 x 120	100	3000	105	1/2"	30
3 BPC150	104500318030	104510310000	3031	5153	15155	18	150 x 150	140	4000	125	3/4"	35
4 BPC200	104500422040	104510410000	6218	10571	31090	22	200 x 200	180	5000	170	1"	45
5 BPC250	104500524050	104510510000	8145	13847	40720	24	250 x 250	200	5000	210	1"	45
6 BPC300	104500626060	104510610000	12952	22018	64760	26	300 x 300	250	5000	260	1 1/4"	50



HOW TO CALCULATE THE LENGTH OF THE BPC

MOD.	H	I	L	H+I+L
BPC100	320	150	140	610
BPC120	350	185	160	695
BPC150	590	170	160	920
BPC200	670	190	190	1050
BPC250	750	200	200	1150
BPC300	830	220	200	1250

“find out the sheet load in order to determine the BPC model. Measure the length of the sheet and divide it by four, this will give you the stroke. Add the fixed quote (H+I+L) referring to the BPC model needed to the double of the stroke previously obtained, in order to find out the overall dimensions of the BPC”.

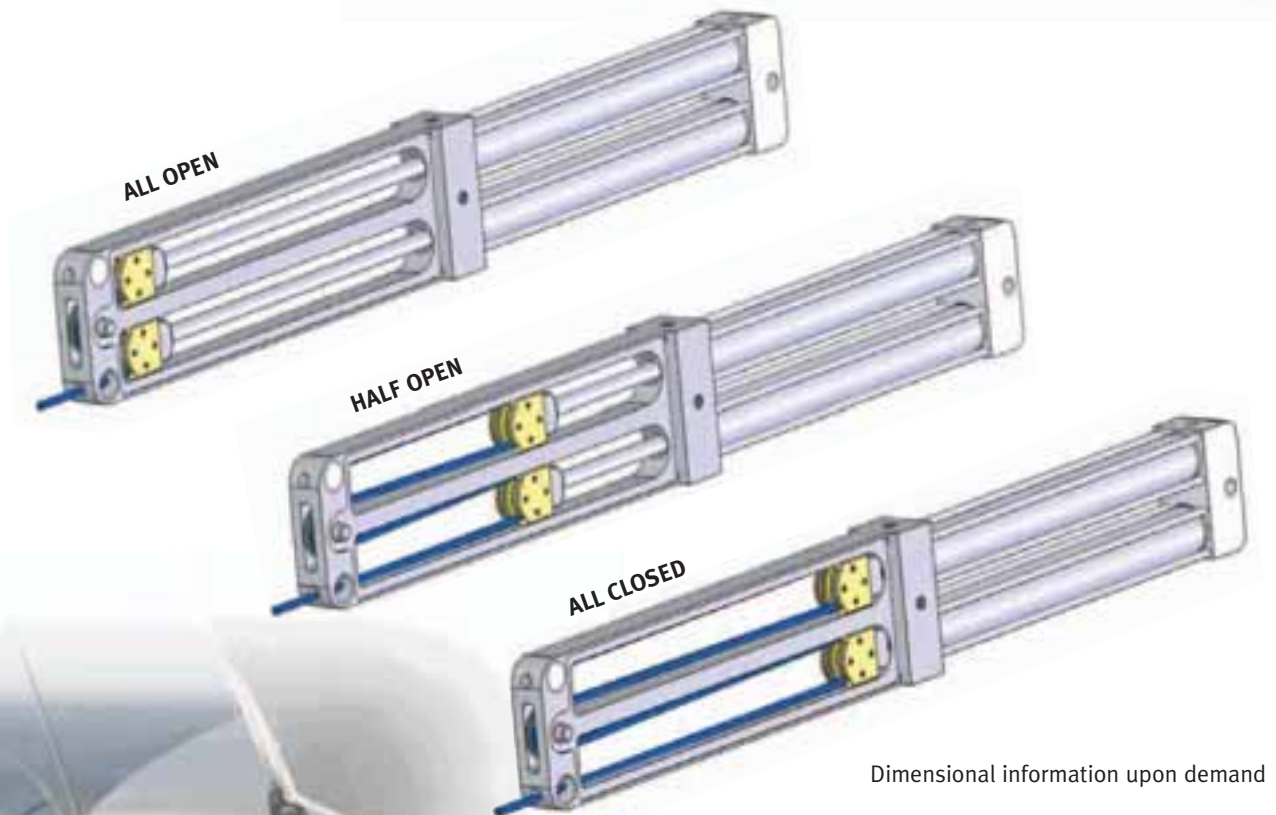
e.g.: BPC mod. 120 with sheet L = 6000
 sheet length 6000:4 = stroke 1500
 710 (H+I+L see table) + (stroke 1500x2) = 3710

(E02) BPC “FLAT” TACKLE CYLINDER

It is an innovative device for the control of running rigging. It is made by a “push and pull” hydraulic cylinder combined with a system of pulleys. Its flat and “self-standing” structure not only allows for an easy installation (genoa sheet below deck, halyards on the mast, integrated cranes, etc...), but also reduces its overall dimensions.



The tackle cylinder may be manufactured in any size and stroke as standard cylinders (E20 E21 E22). Please, refer to page 92



Dimensional information upon demand

(E03) CYLINDER WITH SPHERIC FULCRUM "BSC"

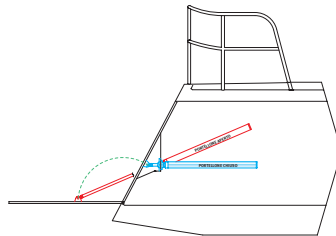
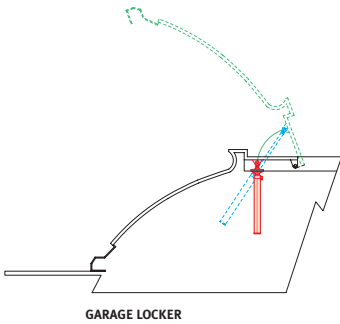
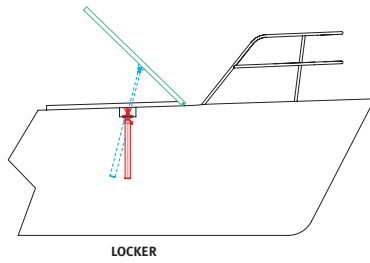
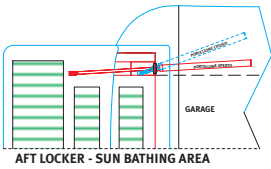
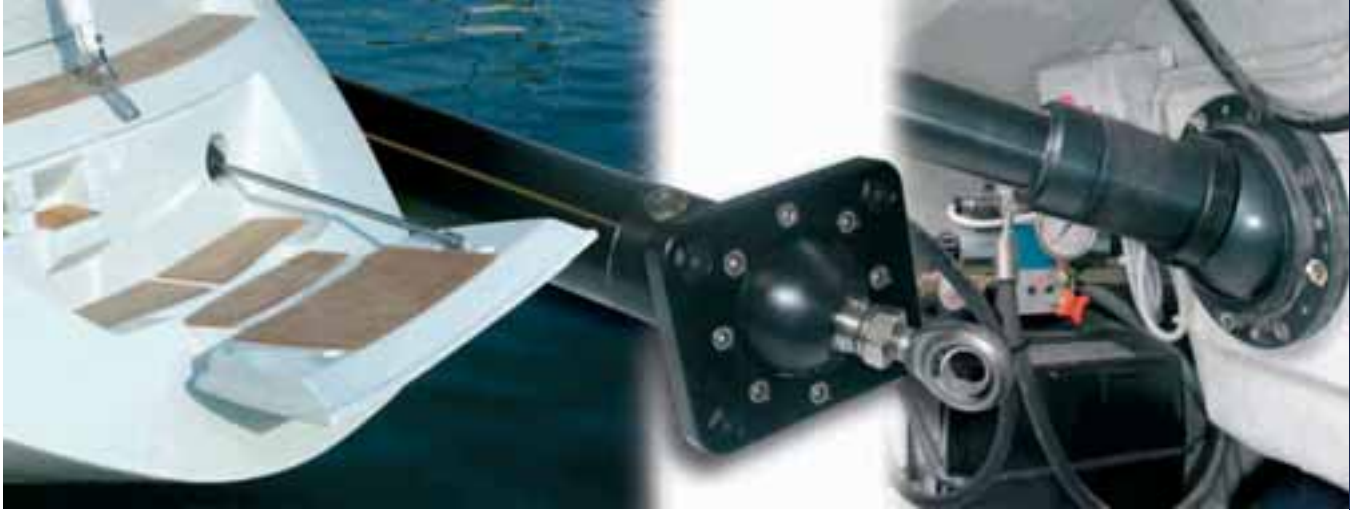
It is an innovative evolution of the standard hydraulic cylinder. It makes use of a special spherical anchoring system to be fitted on the boat's walls. Easy to install and waterproof, it may solve several dimensional problems. It can be operated either through the boat's hydraulic power-pack, or through a mini hydraulic power-pack. Applications: aft lockers, lifting platforms, garage lockers, etc...

MODEL (BASIC DIMENSIONS)

BSC Ø 200 mm
BSC 100x120 mm

CODE

10420010001
10420020001



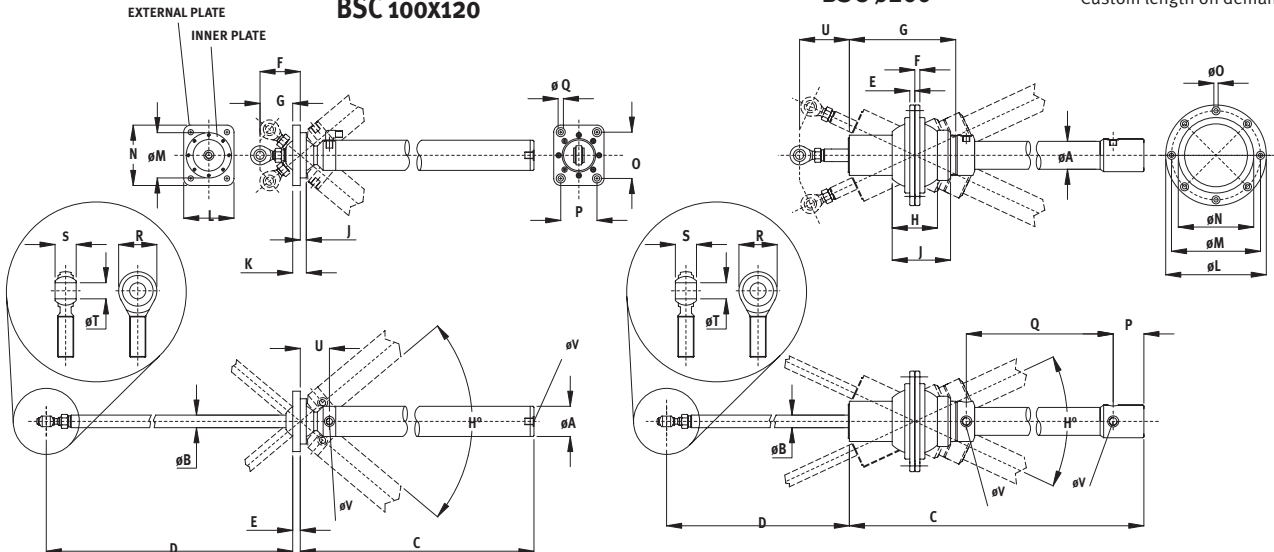
BSC

mm	100x120	Ø 200
A	60	56
B	25	25
C	1000	850
D	865	783
E	15	10
F	80	10
G	65	210
H	80	55
J	12	90
K	27	116
L	100	200
M	90	177
N	120	150
O	92	16,5
P	72	61
Q	11	557
R	38	38
S	21	21
T	16	16
U	58	90
V	1/4"G	1/4"G
WEIGHT (Kg)	9	10,5
STROKE*	800	685

BSC 100x120

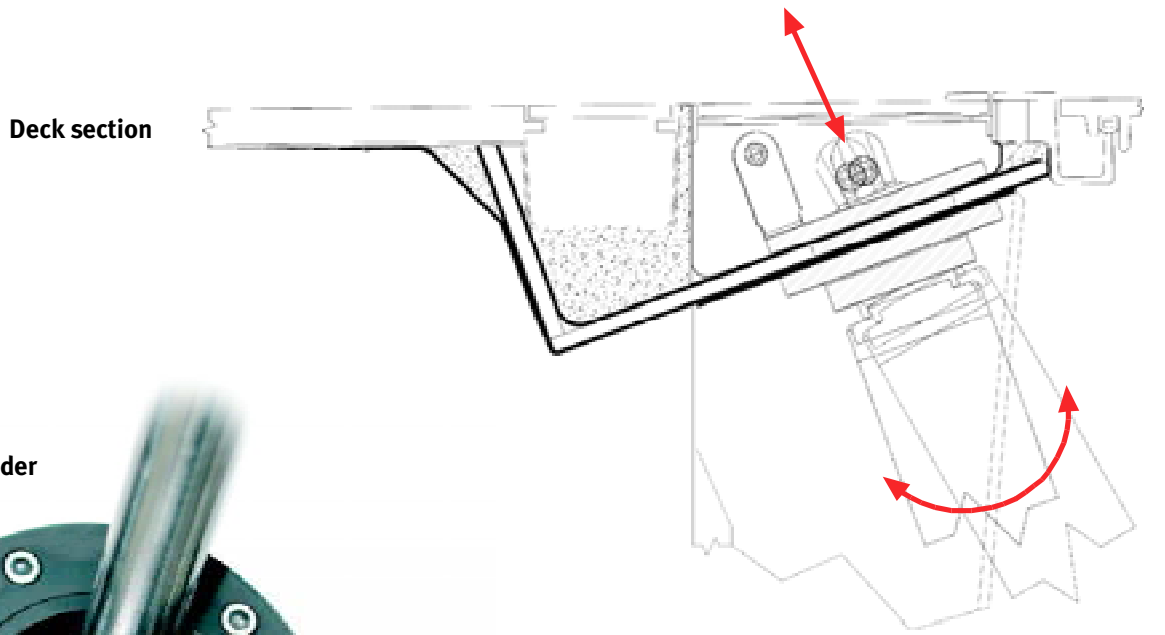
BSC Ø200

*Custom length on demand

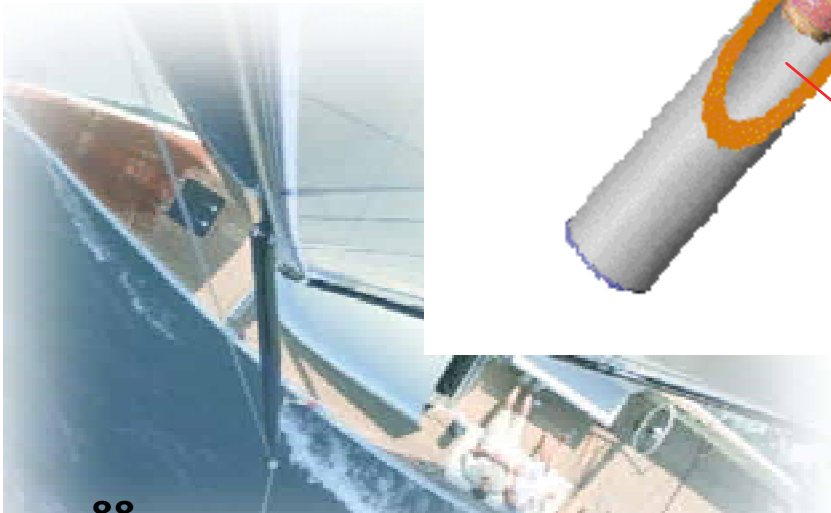
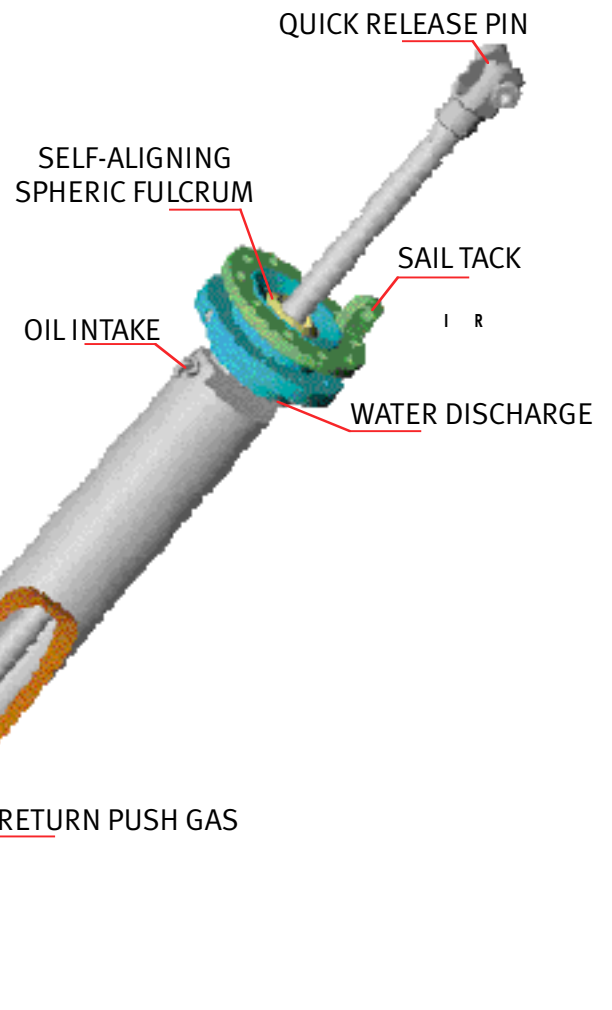
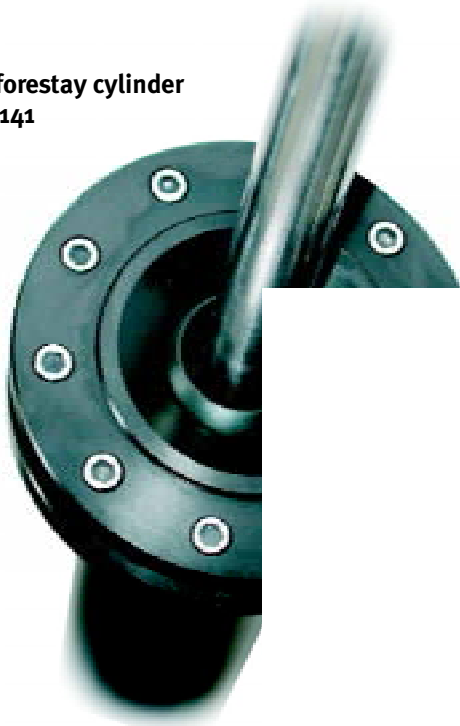


(Eo4) "BSC" STAY TENSIONING CYLINDER WITH SPHERIC FULCRUM

An innovative evolution of the "classic" hydraulic stay tensioning cylinder. It makes use of a special spherical connection on deck, which allows for the correct alignment of the stay and keeps the cylinder water tight below deck leaving the deck tidy. Available for inner forestays and backstays, it is designed depending on the loads required.



Inner forestay cylinder
Wally 141





Bamar presents a complete line of BHP hydraulic panels: single- or multi-function, 1 or 2 speed systems. The BHP mechanism is supplied with the new series of hydraulic cylinders for boom vang, stay tensioners and other functions. The kit is completed by accessories for the hydraulic plant.

HYDRAULIC PANELS AND CYLINDERS

(E10) BHP HYDRAULIC PANELS



Bamar Hydraulic Panel is a manual pump supplied with gauge, release valve and 4-function selector knob (optional), for easy and quick control. Function selection is characterized by a “click into place” knob: an important aspect whenever the crew do not easily see the panel. The system is provided with a big gauge with clear graphics that allows an easier and quicker pressure reading. Moreover, it is supplied with a pressure relief valve to protect the boat’s hydraulic plant. The pump is centred on the lower part of the panel, in order to give a better mechanical advantage and less physical effort. Titanium lever available on demand. BHP is available with a single speed pump and offers a double speed auto-shift pump as an option. The latter triples the oil flow at low pressure for a quick take-up and then automatically moves to a slower speed when pressure gets to a preset level. High flow valves and ports allow panels to be easily interfaced with any hydraulic power pack used for winches and hydraulic furlers. Oil flow supplied by the hydraulic power pack is controlled through the BHP system. Fine tuning at high pressure can be completed with the manual pump. The single function panel can be later converted into multifunction panel with the 4 function conversion unit.

DESCRIPTION	Weight (kg)	CODE
BHP 1 function 1 speed - aluminium panel	3,8	135301000101
BHP 1 function 2 speeds - aluminium panel	3,8	135301000102
BHP 1 function 1 speed - stainless steel panel	4,8	135301000201
BHP 1 function 2 speeds - stainless steel panel	4,8	135301000202
BHP multi function 1 speed - aluminium panel	4,9	135304000101
BHP multi function 2 speeds - aluminium panel	4,9	135304000102
BHP multi function 1 speed - stainless steel panel	5,9	135304000201
BHP multi function 2 speeds - stainless steel panel	5,9	135304000202
1-4 way conversion kit for BHP single function panel		135399000000
1-4 multifunction selector - aluminium panel		135399000100
1-4 multifunction selector - stainless steel panel		135399000200
Racing valve kit		901041000

BHP hydraulic panel kit includes:

- stainless steel or aluminium panel
- stainless steel lever
- pressure gauge
- filter
- 4-way selector (on multifunction models)
- reservoir
- 4 m low pressure plant hose

Optional material:

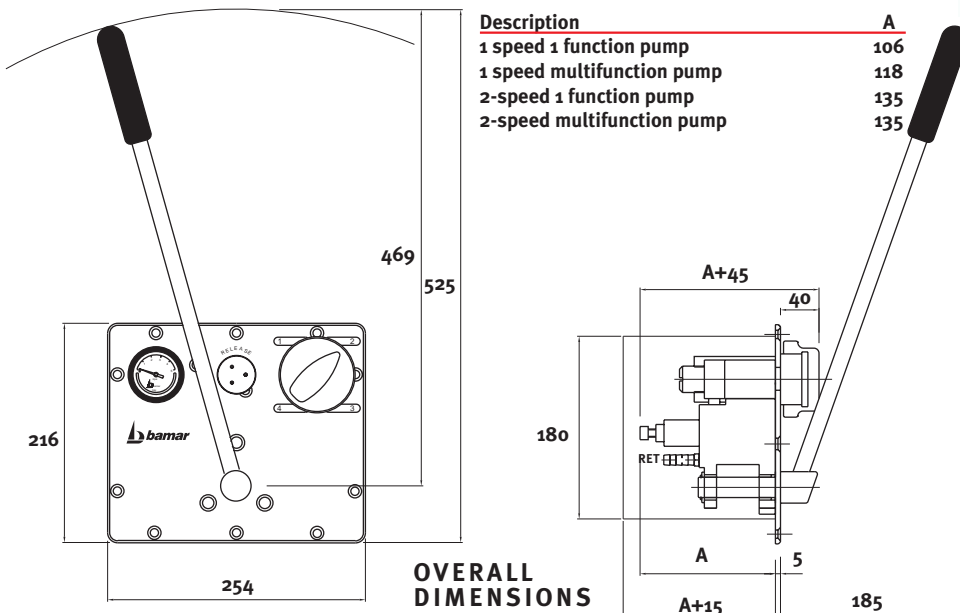
- fittings
- hydraulic hoses



Single function 1 speed

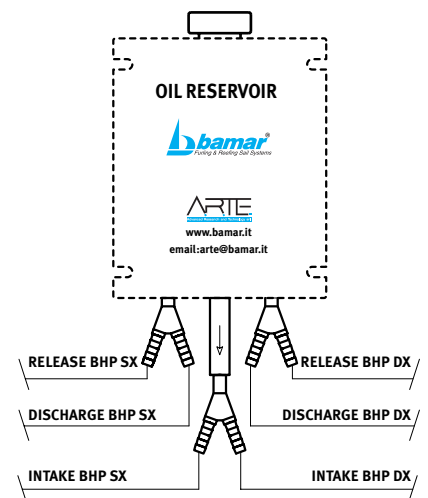


Multi function 2 speed



OVERALL DIMENSIONS

RACING VALVE KIT COD.901041000



(E19) HYDRAULIC BOOM VANGS

Bamar hydraulic vang is safe and easy to use.

Vang cylinders are equipped with an air-pressure piston rod release charged with a “pneumatic” pump located on the cylinder’s body, near to the vang terminal on the boom-side.

Air pressure should be regulated depending on the release speed you wish, and on the thrust needed to contrast the weight of the boom.

Pressure has to be charged at 713-785 psi (50-55 bar).

IMPORTANT: all VANG cylinders may be used with double effect function (push-pull)

CHARACTERISTICS:

- Simple to use, because all controls are within arm reach.
- It has a piston rod with a larger diameter in order to prevent distortions due to compression.
- Wide stroke making boom regulation easier.
- Mechanical advantage thanks to the power developed by the hydraulic pump;
- Safety, since the vang can be operated from the cockpit.
- Safety thanks to gas pressure that works as shock absorber.
- Max pressure 345 BAR (5000 PSI)



BOOM VANG extension

Pneumatic valve

BOOM VANG body and gas chamber

VANG SPECIFICATIONS

DIM. (a) size	ROD DIAMETER		CYLINDER PULL (a)		GAS THRUST (a)		STROKE		RECOMMENDED LENGTH (a)		WEIGHT (a)		CODE
	in	mm	lb	kg	lb	kg	in	mm	in	mm	lb	kg	
-6	0,98	25	1612	731	536	243	9,84	250	47-63	1200-1600	11	5	1041110000006
-10	0,98	25	3528	1600	728	330	9,84	250	55-78	1400-2000	13	6	1041111000010
-12	0,98	25	5713	2591	950	431	9,84	250	55-78	1400-2000	15	7	1041112000012
-17	0,98	25	8203	3720	1204	546	11,81	300	55-100	1400-2550	22	10	1041113000017
-22	1,18	30	12452	5647	1797	815	13,78	350	55-104	1400-2650	26	12	1041114000022
-30	1,18	30	23437	10629	2913	1321	13,78	350	55-106	1400-2700	35	16	1041115000030
-40	1,38	35	30323	13752	3804	1725	15,75	400	N/A	N/A	46	21	1041116000040
-60	1,57	40	38087	17273	4816	2184	17,72	450	N/A	N/A	117	53	1041117000060
-90	1,97	50	43946	19930	5945	2696	19,69	500	N/A	N/A	154	70	1041118000090
-110	1,97	50	62843	28500	7861	3565	19,69	500	196	89	N/A	N/A	1041119000110
-150	2,36	60	77929	35342	10046	4556	21,65	550	N/A	N/A	N/A	N/A	1041120000150

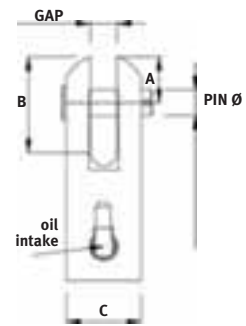
1. max cylinder pull @ 5000 PSI = Max setting of relief valve @ 5000 PSI (354 Bar more or less)
2. standard gas push (standard return force) is considered at 500 PSI. This may be varied from 0 PSI to 1000 PSI.
3. length that differ from standard have an extra charge. Custom lengths are available upon demand following the client's requests.
4. bigger models (-195, -260) are available upon demand.
5. custom weights will be communicated and calculated upon demand depending on the length required.

DIMENSIONS OF VANG TERMINALS

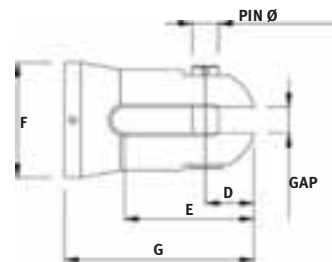
VANG RE. #	PIN Ø	MAST SIDE									BOOM SIDE									
		GAP		A			B			C			D		E		F		G	
		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	
-6	7/16"	11	0,73	18,5	1,73	44,0	1,50	38,0	0,87	22,0	2,17	55,0	1,65	42,0	3,35	85,0				
-10	1/2"	13	0,75	19,0	2,20	56,0	1,77	45,0	0,87	22,0	1,69	57,0	1,71	43,5	3,39	86,0				
-12	5/8"	16	0,94	24,0	2,36	60,0	1,97	50,0	0,94	25,0	1,89	59,0	2,11	53,5	3,46	88,0				
-17	5/8"	16	0,94	24,0	2,36	60,0	1,97	50,0	0,94	25,0	1,89	62,5	2,32	59,0	3,70	94,0				
-22	5/8"	16	1,10	28,0	2,64	67,0	2,17	55,0	0,94	28,0	1,89	66,5	2,76	70,0	3,86	98,0				
-30	3/4"	19	1,32	33,5	2,83	72,0	2,36	60,0	1,10	35,0	2,20	95,0	3,31	84,0	5,39	137,0				
-40	7/8"	22	1,50	38,0	3,46	88,0	2,56	65,0	1,42	40,0	2,87	95,5	3,70	94,0	5,43	138,0				
-60	1"	25	1,69	43,0	3,70	94,0	2,95	75,0	1,50	45,5	3,27	104,0	4,51	114,5	6,02	153,0				
-90	1 1/4"	32	2,09	53,0	4,57	116,0	3,15	80,0	1,75	48,0	3,82	116,0	4,90	124,5	6,42	163,0				
-110	1 1/2"	35	2,32	59,0	5,33	135,5	3,74	95,0	2,17	53,0	4,57	138,5	5,69	144,5	7,99	203,0				
-150	1 3/4"	40	2,70	68,5	6,08	154,5	4,72	120,0	2,50	60,0	5,24	155,0	8,46	159,5	9,17	233,0				



PNEUMATIC VALVE: GAS INTAKE PIN AND TAP



MAST SIDE



BOOM SIDE

(E20-E21-E22) HYDRAULIC CYLINDERS

Thanks to our long experience and to our continuous research, we have come out with a new line of high quality and long lasting Bamar cylinders. These systems have a high tolerance and are manufactured with first quality materials.

We can supply custom lengths on demand.

Bamar standard cylinders are manufactured with high quality materials. Rods are made from polished stainless steel type AISI 316. Tube, fork and cap are all machined from hard-cote anodized aluminium.

We can also supply custom cylinders for any application.

STANDARD CYLINDERS

Standard cylinders are equipped with an air-pressure piston rod release. This release is charged through the "pneumatic" valve located on the cylinder's body, on the opposite end of the rod.

Air pressure should be regulated depending on the release speed you wish.

Pressure is charged at 100 psi (7.0 bar) approximately.

- Max pressure 350 BAR (5000 PSI)

IMPORTANT: all cylinders may be used with double effect function (push-pull)



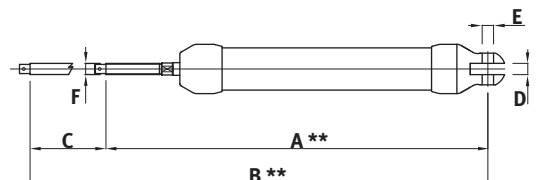
CYLINDERS CHARACTERISTICS

#	MAX ROD Ø		MAX WIRE Ø		BREAKING LOAD		WORKING LOAD		ROD Ø		THREAD F		ALL CLOSED A**		ALL OPEN B**		STROKE C		FORK WIDTH D		PIN E		CODE
	mm	in	mm	in	lbs	kg	lbs	kg	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	
-6	5,03	0,24	6	9,768	4,425	4,097	1,856	0,59	15	3/8"	9,5	19,09	4,85	27,76	705	8,66	220	0,47	12	7/16"	11,2	1041001060060	
-6	5,03	0,24	6	9,768	4,425	4,097	1,856	0,59	15	3/8"	9,5	23,62	600	36,81	935	13,19	335	0,47	12	7/16"	11,2	1041002060060	
-6	5,03	0,24	6	9,768	4,425	4,097	1,856	0,59	15	3/8"	9,5	29,53	750	49,21	1.250	19,69	500	0,47	12	7/16"	11,2	1041003060060	
-10	6,35	0,28	7	12,956	5,869	6,068	2,749	0,59	15	1/2"	12,7	19,88	505	28,54	725	8,66	220	0,51	13	1/2"	12,7	1041001070100	
-10	6,35	0,28	7	12,956	5,869	6,068	2,749	0,59	15	1/2"	12,7	24,41	620	37,40	950	12,99	330	0,51	13	1/2"	12,7	1041002070100	
-10	6,35	0,28	7	12,956	5,869	6,068	2,749	0,59	15	1/2"	12,7	31,50	800	51,18	1.300	19,69	500	0,51	13	1/2"	12,7	1041003070100	
-12	7,14	0,31	8	18,336	8,306	7,744	3,508	0,71	18	5/8"	15,9	21,46	545	31,10	790	9,65	245	0,63	16	5/8"	15,9	1041001080120	
-12	7,14	0,31	8	18,336	8,306	7,744	3,508	0,71	18	5/8"	15,9	26,18	665	39,96	1.015	13,78	350	0,63	16	5/8"	15,9	1041002080120	
-12	7,14	0,31	8	18,336	8,306	7,744	3,508	0,71	18	5/8"	15,9	36,61	930	60,24	1.530	23,62	600	0,63	16	5/8"	15,9	1041003080120	
-17	8,38	0,39	10	20,009	9,064	10,366	4,696	0,71	18	5/8"	15,9	21,65	550	30,71	780	9,06	230	0,63	16	5/8"	15,9	1041001100170	
-17	8,38	0,39	10	20,009	9,064	10,366	4,696	0,71	18	5/8"	15,9	27,17	690	40,94	1.040	13,78	350	0,63	16	5/8"	15,9	1041002100170	
-17	8,38	0,39	10	20,009	9,064	10,366	4,696	0,71	18	5/8"	15,9	43,70	1.110	73,23	1.860	29,53	750	0,63	16	5/8"	15,9	1041003100170	
-22	9,53	0,47	12	26,437	11,976	12,287	5,566	0,87	22	3/4"	19	24,02	610	33,07	840	9,06	230	0,75	19	3/4"	19	1041001120220	
-22	9,53	0,47	12	26,437	11,976	12,287	5,566	0,87	22	3/4"	19	29,92	760	44,09	1.120	14,17	360	0,75	19	3/4"	19	1041002120220	
-22	9,53	0,47	12	26,437	11,976	12,287	5,566	0,87	22	3/4"	19	50,39	1.280	84,65	2.150	34,25	870	0,75	19	3/4"	19	1041003120220	
-30	11,10	0,55	14	39,731	17,998	21,940	9,939	0,98	25	7/8"	22	27,56	700	37,40	950	9,84	250	0,87	22	7/8"	22,2	1041001140300	
-30	11,10	0,55	14	39,731	17,998	21,940	9,939	0,98	25	7/8"	22	33,86	860	49,41	1.255	15,55	395	0,87	22	7/8"	22,2	1041002140300	
-30	11,10	0,55	14	39,731	17,998	21,940	9,939	0,98	25	7/8"	22	57,68	1.465	96,46	2.450	38,78	985	0,87	22	7/8"	22,2	1041003140300	
-40	12,70	0,63	16	54,137	24,524	33,521	15,185	1,18	30	1"	25,4	29,92	760	40,55	1.030	10,63	270	1,02	26	1"	25,4	1041001160400	
-40	12,70	0,63	16	54,137	24,524	33,521	15,185	1,18	30	1"	25,4	37,20	945	53,74	1.365	16,54	420	1,02	26	1"	25,4	1041002160400	
-40	12,70	0,63	16	54,137	24,524	33,521	15,185	1,18	30	1"	25,4	64,76	1.645	108,27	2.750	43,50	1105	1,02	26	1"	25,4	1041003160400	
-60	16,76	0,75	19	83,057	37,625	41,901	18,981	1,38	35	1 1/4"	31,8	35,63	905	46,65	1.185	11,02	280	1,26	32	1 1/4"	31,8	1041001190600	
-60	16,76	0,75	19	83,057	37,625	41,901	18,981	1,38	35	1 1/4"	31,8	43,70	1.110	61,61	1.565	17,91	455	1,26	32	1 1/4"	31,8	1041002190600	
-90	19,51	1,02	26	131,618	59,623	53,481	24,227	1,38	35	1 1/4"	31,8	39,37	1.000	52,17	1.325	12,80	325	1,50	38	1 1/8"	38,1	1041001260900	
-90	19,51	1,02	26	131,618	59,623	53,481	24,227	1,38	35	1 1/4"	31,8	47,24	1.200	68,11	1.730	20,87	530	1,50	38	1 1/8"	38,1	1041002260900	
-150	25,40	1,26	32	210,139	95,193	90,660	41,069	1,77	45	1 1/2"	38,1	45,08	1.145	59,84	1.520	14,76	375	1,77	45	1 1/4"	44,5	1041001321500	
-150	25,40	1,26	32	210,139	95,193	90,660	41,069	1,77	45	1 1/2"	38,1	54,13	1.375	77,76	1.975	23,62	600	1,77	45	1 3/4"	44,5	1041002231500	

* Atm 5000 PSI

** length from the end of the rod thread to the pin centre on the cylinder

1041001... STANDARD 1041002... LONG 1041003... FLATTENER



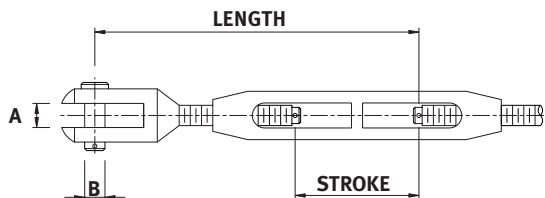
(E90-E91-E92-E93) CYLINDERS ACCESSORIES

CYLINDER TERMINALS

Bamar offers a wide range of cylinder terminals, for many different uses.

- stainless steel adjustable fork - it allows a minimum length adjustment
- turnbuckle with fork terminal – it allows a good length adjustment
- fork-eye toggle – it is used on the lower part of the cylinder in order to prevent side loads. It is normally installed on backstay- and inner forestay- cylinders .

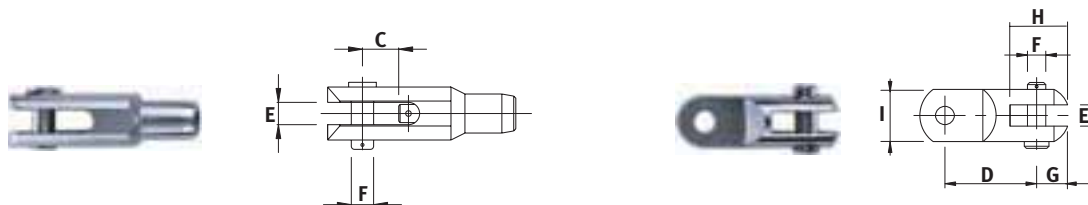
TURNBUCKLE WITH FORK TERMINAL



#	MAX ROD Ø		MAX WIRE Ø		THREAD		ALL CLOSED		ALL OPEN		STROKE		FORK WIDTH A		Ø PIN B		CODE
	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	inox	
-6	5,03	0,24	6	3/8"	9,5	4,92	125	7,87	200	2,95	75	0,47	12	7/16"	11,2	209080600 *	
-10	6,35	0,28	7	1/2"	12,7	5,51	140	9,06	230	3,54	90	0,51	13	1/2"	12,7	209080700 *	
-12	7,14	0,31	8	5/8"	15,9	7,48	190	11,81	300	4,33	110	0,63	16	5/8"	15,9	209080800 *	
-17	8,38	0,39	10	5/8"	15,9	7,48	190	11,81	300	4,33	110	0,63	16	5/8"	15,9	209081000 *	
-22	9,53	0,47	12	3/4"	19	8,86	225	14,17	360	5,31	135	0,75	19	3/4"	19	209081200 *	
-30	11,10	0,55	14	7/8"	22	11,34	288	18,03	458	5,69	170	0,87	22	7/8"	22,2	209081400	
-40	12,70	0,63	16	1"	25,4	11,42	290	19,29	490	7,87	200	1,02	26	1"	25,4	209081600	
-60	16,76	0,75	19	1 1/4"	31,8	14,09	358	25,59	650	11,50	292	1,26	32	1 1/4"	31,8	209081900	
-90	19,51	1,02	26	1 1/4"	31,8	14,09	358	25,59	650	11,50	292	1,38	35	1 3/8"	34,9	209082600	
-150	25,40	1,26	32	1 1/2"	38,1	-	-	-	-	-	-	1,77	45	1 3/4"	44,5	209083200	

* turnbuckle available also with bronze body = cod. 209080601

ADJUSTABLE FIXED FORK AND TOGGLES



#	MAX ROD Ø		MAX WIRE Ø		FIXED FORK CODE	TOGGLE CODE	C		D		E		Ø PIN F		G		H		I	
	mm	in	mm	in			in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
-6	5,03	0,24	6	3/8"	209060600	209090600	0,98	25,0	1,73	44,0	0,47	12	7/16"	11,2	0,63	16	1,57	40	0,98	25
-10	6,35	0,28	7	1/2"	209060700	209090700	1,18	30,0	2,68	68,0	0,51	13	1/2"	12,7	0,79	20	1,85	47	1,26	32
-12	7,14	0,31	8	5/8"	209060800	209090800	1,22	31,0	2,76	70,0	0,63	16	5/8"	15,9	0,90	23	2,04	52	1,49	38
-17	8,38	0,39	10	5/8"	209061000	209091000	1,22	31,0	2,76	70,0	0,63	16	5/8"	15,9	0,90	23	2,04	52	1,49	38
-22	9,53	0,47	12	3/4"	209061200	209091200	1,38	35,0	3,23	82,0	0,75	19	3/4"	19,0	1,06	27	2,44	62	1,77	45
-30	11,10	0,55	14	7/8"	209061400	209091400	1,50	38,0	4,06	103,0	0,87	22	7/8"	22,2	1,26	32	2,75	70	2,01	51
-40	12,70	0,63	16	1"	209061600	209091600	1,57	40,0	4,37	111,0	1,02	26	1"	25,4	1,38	35	2,95	75	2,24	57
-60	16,76	0,75	19	1 1/4"	209061900	209091900	2,17	55,0	6,06	154,0	1,26	32	1 1/4"	31,8	1,73	44	4,13	105	2,79	71
-90	19,51	1,02	26	1 1/4"	209062600	209092600	2,17	55,0	6,06	154,0	1,38	35	1 3/8"	34,6	2,08	53	4,33	110	3,26	83
-150	25,40	1,26	32	1 1/2"	209063200	209093200	2,76	70,0	8,66	220,0	1,77	45	1 3/4"	44,5						

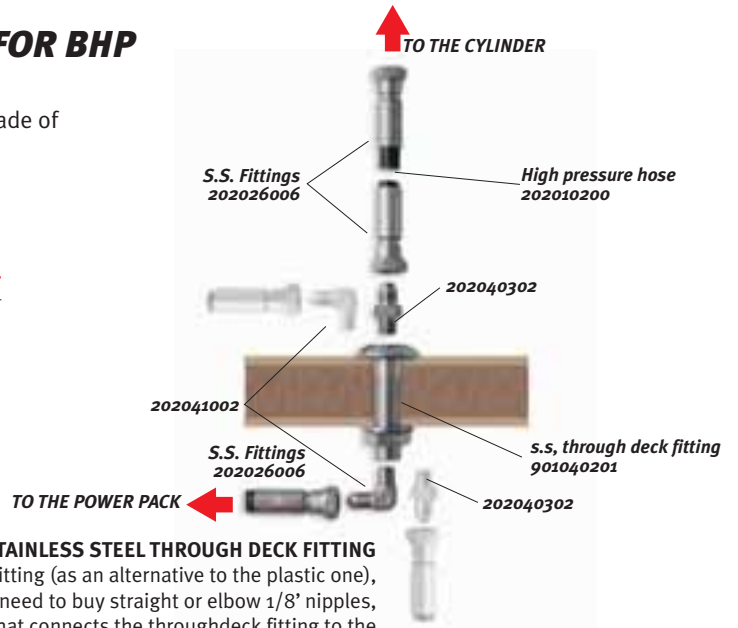


(E96) BAMAR HYDRAULIC ACCESSORIES FOR BHP

Reservoir

Bamar reservoir allows the visual control of oil level, because it is made of a semitransparent and waterproof plastic material (polyethylene). For greater capacities more reservoirs may be connected.

VOLUME		EXTERNAL WIDTH		EXTERNAL HEIGHT		EXTERNAL THICKNESS	
in ³	dm ³	in	mm	in	mm	in	mm
360,00	3.5	7,13	182	10,82	275	4,53	115



STAINLESS STEEL THROUGH DECK FITTING

When you order this through deck fitting (as an alternative to the plastic one), you have to remember that you also need to buy straight or elbow 1/8" nipples, and the hose with swage fittings that connects the throughdeck fitting to the desired function.

To complete the BHP panel supply, we offer hoses and fittings for the hydraulic plant. In the table below you will find the codes to place the order:

PRODUCT

CODE

PRESSURE GAUGE FOR BHP 600 BAR, 5KPSI, WITH BUSH

135901000105



HOSE R1 DN10 10BAR MAX

202010100



HOSE SAE100 R8 1/4 MARINE GRADE B.P. 1400 BAR W.P. 350 BLACK

202010200



SWAGE S.S. FITTING F.7/16 JIC STRAIGHT

202026006



S.S. NIPPLES M.JIC37-M.JIC37

202030106



S.S. NIPPLES F.1/8 NPT-M.JIC37

202040202



S.S. NIPPLES M.JIC37-M.1/8" NPT

202040302



S.S. NIPPLES M.JIC37-M.1/4" NPT

202040303



S.S. NIPPLES M.JIC37-M.1/8 NPT - M.1/8" NPT

202090102



S.S. ELBOW M.JIC37 - M.JIC37

202031006



S.S. ELBOW F.JIC37 - M.JIC37

202031106



S.S. ELBOW M.JIC37 - M.1/8" NPT

202041002



S.S. ELBOW M.JIC37 - F.1/8" NPT

202041202



S.S. "T" M.JIC37 - M.JIC37 - M.JIC37

202032006



S.S. "T" F.JIC37 - M.JIC37 - M.JIC37

202032106



S.S. "T" M.JIC37-M.JIC37-M.1/8NPT

202042202



S.S. NIPPLES 1/8 NPT

202033006



S.S. CAP F. JIC37

202113106



S.S. QUICK RELEASE FITTING 1/4

202135003



OIL FILTER Ø 8 MM

202650100



3,5 LT RESERVOIR+3 HOLES Ø1/4

202660100



BLACK PLASTIC THRU DECK GLAND FOR HOSE 520N-4-R81/4

901040101



S.S.THROUGHDECK FITTING R8 1/4 F 1/8 NPT - F 1/8 NPT

901040201



S.S.LEVER FOR BHP PANEL

901500100



LEVER HOLDER FOR BHP PANEL

901500200



HYDRAULIC HOSES

The use of stainless steel tubes is quite common, but flexible hoses are perfect for most installations. Bamar flexible hoses are easier to install. Moreover, with a correct installation they will perform faultlessly for many years.

Warning: avoid sharp objects and fastenings and make sure the hoses do not curl too much.

Applications: these hoses have been created for high-pressure pneumatic and hydraulic use.

Working pressure: $-40^{\circ} +93^{\circ}$

INTERNAL DIAMETER		EXTERNAL DIAMETER		WORKING PRESSURE		BURST PRESSURE		MIN. BENDING RADIUS	
in	mm	in	mm	psi	bar	psi	bar	in	mm
1/4	6,35	0,484	12,3	5.075	350	20.300	1.400	1,96	50

(E99) VARIOUS ACCESSORIES FOR BHP

PRODUCT

CODE

Hexagonal brass cap 1/8 NPT (for BHP)

202503202

Hexagonal brass cap 1/4 NPT (for reservoir)

202503203

Brass elbow m.1/8-F.1/8 (For BHP)

202531502

Brass tube socket \varnothing 10 thread 1/8 (for BHP)

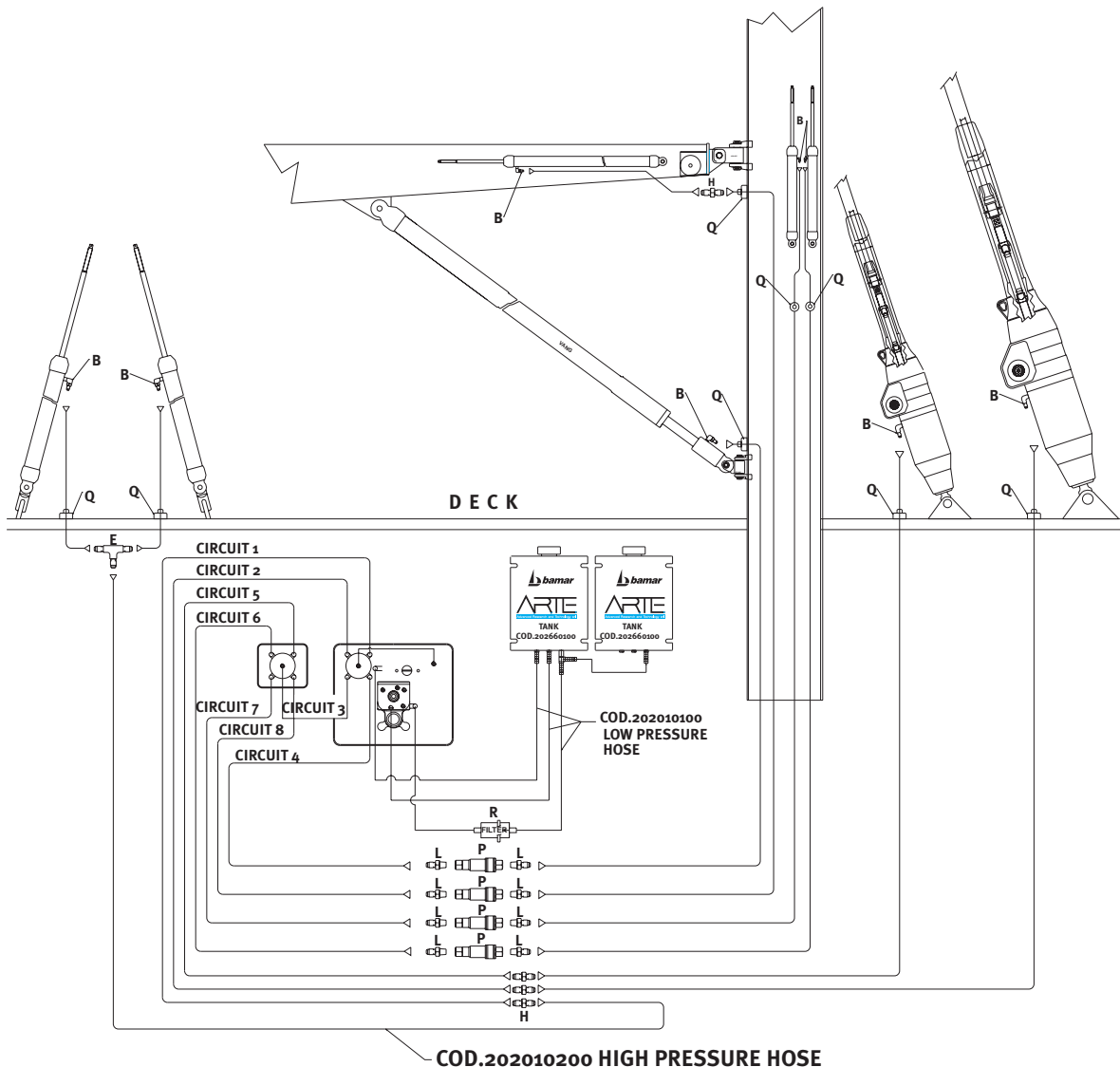
202534102

Brass tube socket \varnothing 10 thread 1/4 (for reservoir)

202534103

Oil for BHP SHELL TELLUS 32

202800132



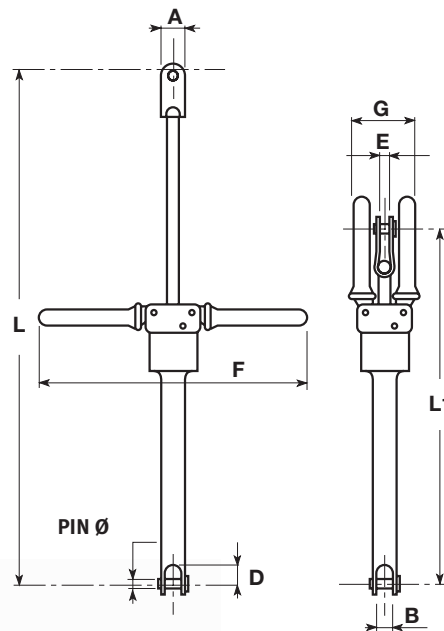
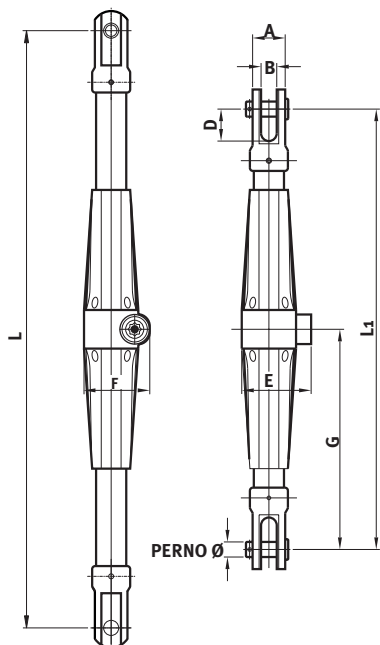
(F10) MANUAL STAY ADJUSTERS

BAMAR stay adjusters are simple to install and easy to use. These systems are very useful, resistant and powerful and may be fitted on small to medium sized sailing yachts.

BTV HAND-WHEEL STAY ADJUSTERS

Hand-wheel stay adjusters are supplied with foldable handles. Three models for 5, 6 and 8 mm wire stays are available.

The use of self-lubricating bushes reduces to a minimum the friction caused by the screw sliding on the trapezoidal thread drive that allows high axial loads.



Optional quick release pin (please, see page 97)

BTM HANDLE STAY ADJUSTERS

Handle stay adjusters are available in different sizes to be used on 1x19 wire stays from 8 to 22 mm.. The tensioner can be operated by means of a standard winch handle thanks to an octagonal clutch. The body is manufactured in black Hardcote anodised aluminium, with stainless steel type Aisi 316 parts.

WIRE Ø	WORKING LOAD	BREAKING LOAD	PIN Ø	MAX L.	MIN L ₁	STROKE	A	B	D	E	F	G	CODE
mm	kg	kg	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	
BTV 5	1500	3000	8	420	280	140	20	16	33	13	280	65	103001050000
BTV 6	2300	4800	10	530	330	200	25	16	35	14	280	65	103002060000
BTV 8	3300	6800	12,5	575	365	210	25	16	38	18	290	70	103003080000
BTM 8	4400	8800	13,5	900	600	300	34	16	27	115	89	280	103111080000
BTM 10	5000	10000	15,5	900	600	300	34	16	27	115	89	280	103111100000
BTM 12	7000	14061	18,5	950	650	300	45	20	35	115	89	302	103111120000
BTM 14	8500	17000	21,5	1170	770	400	52	22,5	47	115	89	367	103111140000
BTM 14	9600	19225	22	1380	860	500	54	26	85,5	116	110	430	103201140000
BTM 16	12500	25000	25	1360	860	500	54	26	85,5	115	110	430	103201160000
BTM 19	16000	32439	28	1397	987	500	63	29	103,5	115	110	448,5	103201190000
BTM 22	20400	40852	35	1463	963	500	72,7	35	133,6	115	110	481,5	103201220000

(F19) QUICK RELEASE PINS

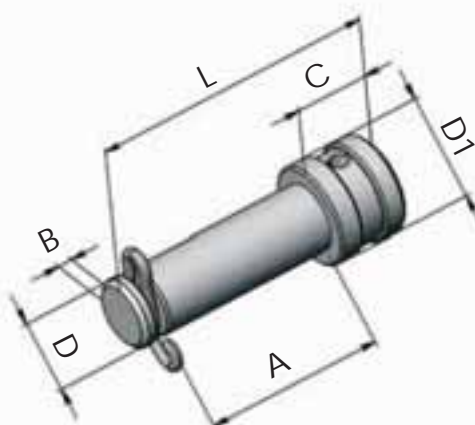
New range of quick release pins with diameters from 8 to 21,5 mm for 1x19 wire stays from $\varnothing 5$ to $\varnothing 14$ mm.

They are supplied with a s.s. spring. The kit is completed by short lines which help opening and closing the pin and secure it in order not to loose it.

They represent the ideal solution for inner forestay tensioners or standing rigging that need to be "running" with a simple operation.

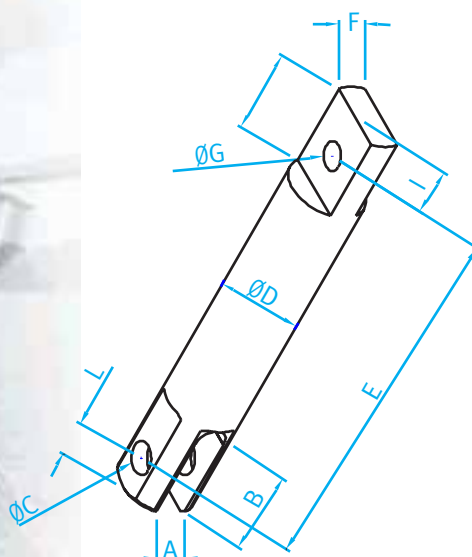
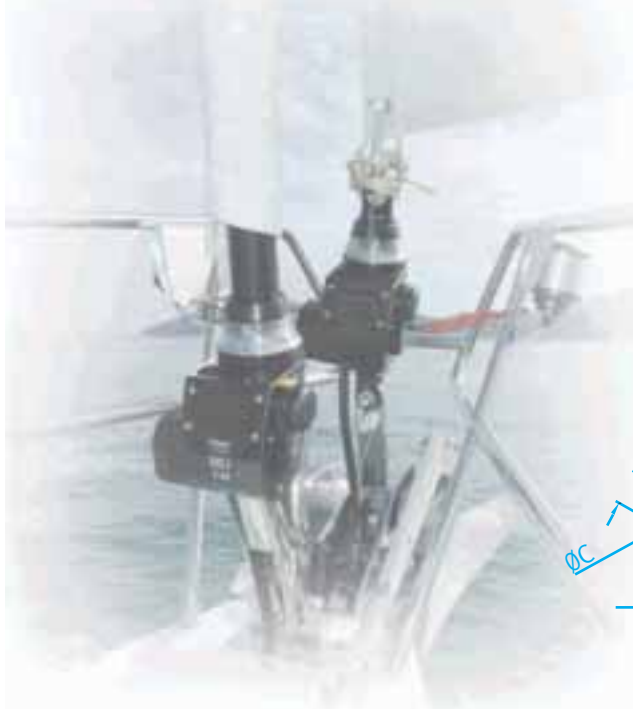


A	B	C	D	D1	L	WIRE	CODE
mm	mm	mm	mm	mm	mm	\varnothing	
33	3	14	8	14	53,5	5	901030101
33	3	14	10	16	53,5	6	901030102
33	3	14	12,5	18	53,5	8	901030103
37	3	14	13,5	20	57,5	8	901030104
37	3	14	15,5	22	57,5	10	901030105
49	3	14	18,5	25	69,5	12	901030106
58	3	14	21,5	28	78,5	14	901030107



(F90) EXTENSIONS FOR BTM STAY ADJUSTERS

STAY ADJUSTER	A	B	C	D	E	F	G	H	I	L	CODE
MODEL	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	
BTM8	16,2	47	16	40	20	15	14	47	26	20	901030201
BTM10	20,5	60	19	40	200	15	16	47	26	25	901030202





V46FC Vismara Yacht Design - Cantieri Marine Services



Bamar rod kicker is a mechanical system characterised by a steel spring that pushes the boom up. The range is available for 30' to 62' boats

MECHANICAL KICKERS

(G10) MECHANICAL KICKER WITH ADJUSTABLE SPRING

Every sailing boat makes use of a KICKER for the correct regulation of the mainsail through the inclination of the boom. BAMAR KICKER is supplied with an internal spring that pushes up the boom and gives to any boat:

1. a better control and efficiency of the mainsail
2. easy reefing
3. higher safety as the boom does not fall down anymore

BAMAR KICKER is manufactured in anodised aluminium alloy. It is made of two telescopic tubes equipped with special connecting terminal with integrated pulleys that form a compact line tackle. The line can be either directed to the cockpit or locked on the KICKER itself by means of an extra tackle.

MATERIALS:

The aluminium terminals are machined with CNC machines in order to gain high mechanical resistance.

The pulleys are made of plastic material suitable for marine environment. The pins are made of stainless steel type AISI 316, and the spring is made of hardened stainless steel type AISI 330.

The pins holding the pulleys are removable.

ADJUSTABLE THRUST

The spring gives you the possibility of adjusting the KICKER thrust with the simple rotation of the upper tube.

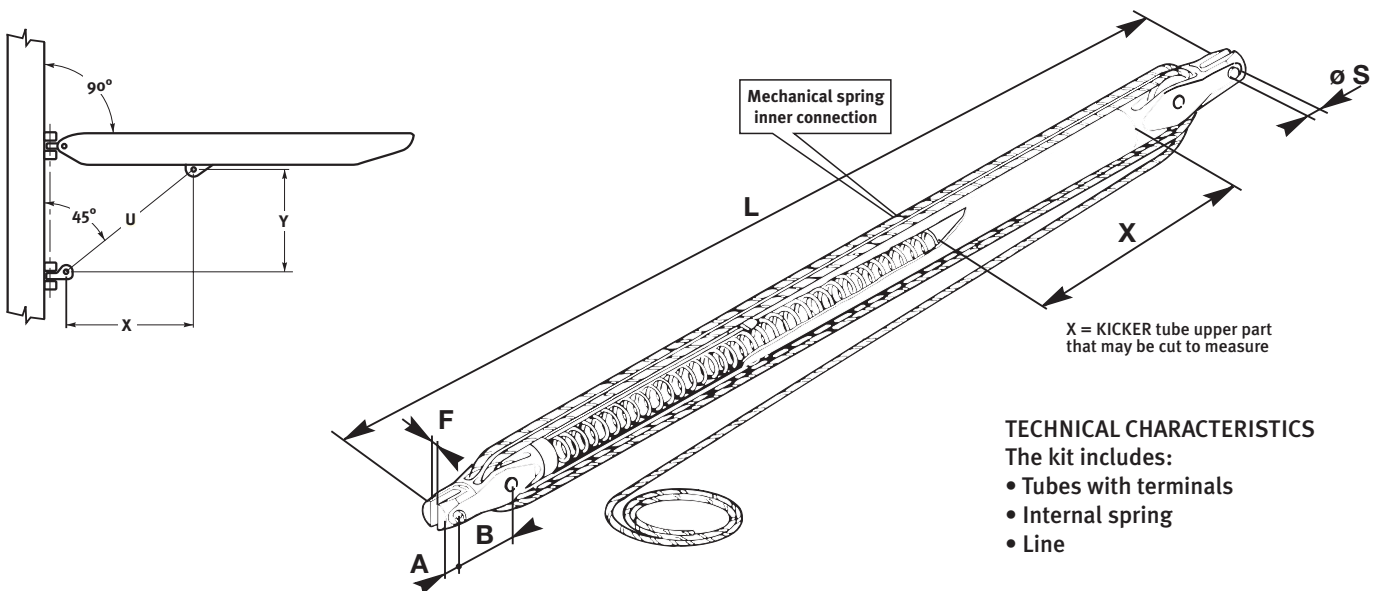
HOW TO CHOOSE THE KICKER

The KICKER is to be chosen depending on the size of the boat, type of mainsail (whether furling or full-batten), its weight, boom weight and length, and the "U" length with boom at 90°.

If you do not have this measure, you may find out the length of the KICKER by determining the measures "X" and "Y".

When you take these measures you have to keep in mind that:

1. the boom has to be at 90° as regards to the mast (excluding cruising or racing boats with a low mainsail base cut.)
2. in order to obtain a correct push from the KICKER we suggest keeping a 45° angle between mast and KICKER.
3. the BAMAR KICKER range is made of 5 models with standard maximum lengths. The right length for your boat is determined when the system is to be installed on board.



TECHNICAL CHARACTERISTICS

The kit includes:

- Tubes with terminals
- Internal spring
- Line



4:1 reduction
100 - 200 - 300S



8:1 reduction
lod. 300
400
500



8:1 reduction
with
hook

Technical data	Mod. Cod.	100 105001000000	200 105002000000	300S 105003000000	300 105004000000	400 105005000000	500 105006000000
* Boat length	ft	30' - 34'	35' - 44'	42' - 52'	50' - 55'	54' - 56'	57' - 62'
"U" length with boom at 90°	mm	900-1500	1050-1850	1050-1850	1400-2350	1400-2350	1800-2500
L Length	mm	1600	2000	2000	2500	2500	2500
X max cut	mm	400	600	600	750	750	750
Total stroke	mm	200	250	250	250	250	300
Thrust (with pre-load)	kg	110	180	330	330	410	600
Line ø	mm	8	9	10	10	10	10
Reduction ratio		4:1	4:1	4:1	8:1	8:1	8:1
Weight	kg	3	7	8	10	11	14
A	mm	14	16	20	20	20	20
B	mm	35	45	65	65	65	65
F	mm	12	14	18	18	18	18
ø S	mm	10	12	14	14	14	14

*INDICATIVE: please check

Special lengths available on demand

(H10-H11) EXTERNAL FURLING AWNING + ACCESSORIES

SUN AWNING for sail and motor yachts.

The main characteristics of this article are functionality and practicality. The awning is available with either TREVIRA or DACRON cloth. On sailing yachts, it may be fitted either on both sides of the boom (see drawing), on the foredeck, or on the backstay to protect the skipper.

On motor yachts, it may be installed on the roll-bar to protect the cockpit.

It is manually operated: you just have to free the locking line and drag the awning to unroll it. A slight pull on the line is enough to roll the awning that will disappear inside the foil.

It is a very practical accessory because it may be stopped in any position, thus offering the desired shade and bettering life onboard. With high wind, the awning may be used as dodger if it is anchored to the rig or to the washboard.

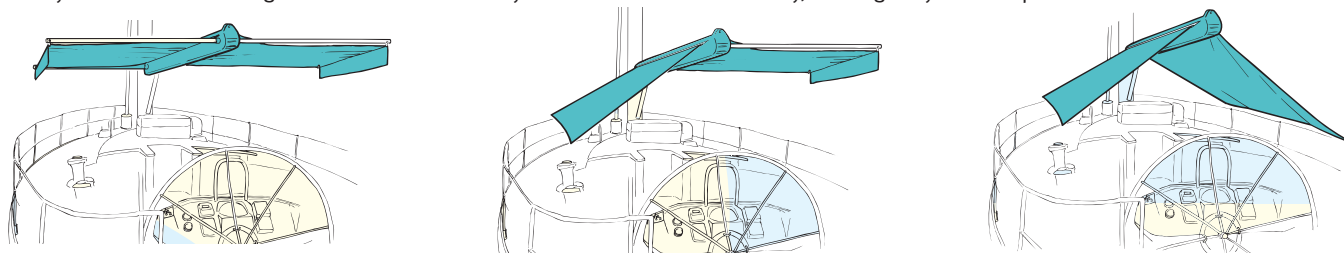
Its functionality sensibly augments if you use supporting arms to be fitted on the boom. In this case, the awning does not have to be anchored to the rig, as it is kept upright thanks to the arms. The boom can then be moved sideways in order to shade the desired area. This system allows you to use the awning even when you are sailing.

The awning may be used as a rain cover because TREVIRA cloth is rainproof.

It is a practical and fast system to be used. When the awning is rolled in, you just have to take off the arms in order not to have obstacles when sailing.

In any case, the external furling awning **has to be secured to the boom** by means of the safety belts supplied inserted on the pad eyes fitted on the two extremities. Always keep **the awning under control should the wind rise and when sailing** because the cloth offers a great exposition to wind and the awning might tear, detach from the boom or break the supporting arms.

The system has been designed in order to be easily taken off and stowed away, leaving only the s.s. plates riveted on the boom.



AWNING	MECHANISM LENGTH m	CLOTH LENGTH m	CLOTH LONGIT.DEVELOP. m	COLOUR OF MECHANISM	CLOTHCOLOUR	WEIGHT kg	CODE
TREVIRA	2.0	1.9	1.95	SILVER ANODISING	WHITE	7	115001010000
TREVIRA	2.5	2.4	1.95	SILVER ANODISING	WHITE	7.5	115002010000
DACRON	2.0	1.9	1.95	SILVER ANODISING	WHITE	7	115101010000
DACRON	2.5	2.4	1.95	SILVER ANODISING	WHITE	7.5	115102010000
DACRON	4.0	3.9	1.95	SILVER ANODISING	WHITE	10.0	115103010000

DIMENSIONS	ARMS	LENGTH m	COLOUR	WEIGHT kg	CODE
	stainless steel	1.5	polished stainless steel	1	901150100

The standard awning kit includes:

- External foil
- Trevira or Dacron cloth
- Furling line
- Furling foil
- S.s. plate for boom anchoring
- Safety belt (to lock the mechanism to the boom)
- Screws

Optional material:

- **ARMS KIT**

The kit includes:

n°2 arms supports to be fitted to the boom

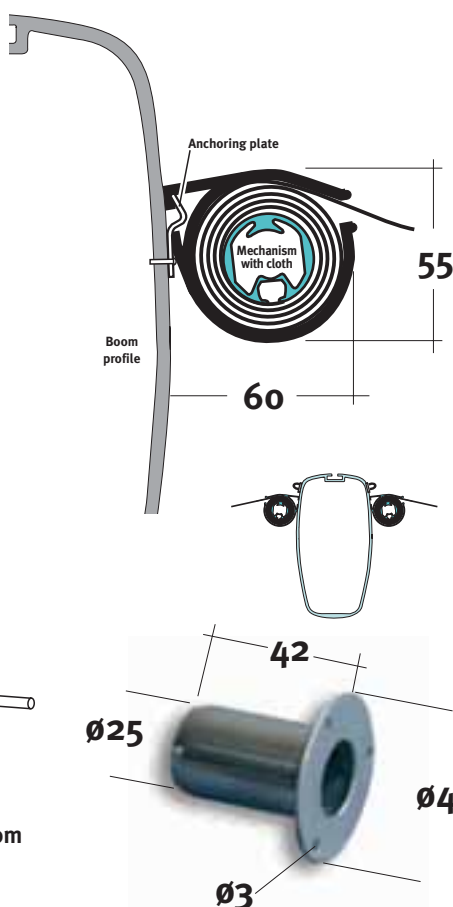
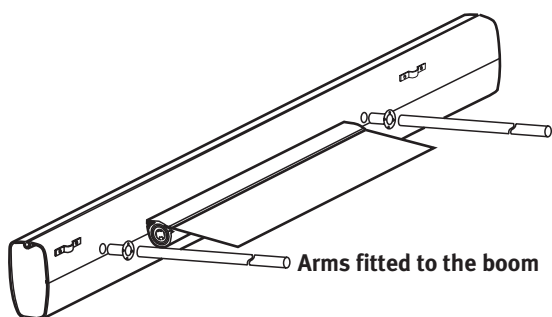
n°2 stainless steel arms

n°2 bridges to anchor tackles

n°2 tackles to tension the awning

n°4 snap shackles for quick release

- screws needed for the installation



Measures, if not specifically indicated, are expressed in millimetres.



Bamar offers a wide range of hydraulic power-packs to be customized with the hydraulic functions needed in order to operate the different mechanisms onboard.

HYDRAULIC POWER-PACKS

(101) MINI HYDRAULIC POWER-PACK

A.R.TE. presents a series of mini hydraulic power-packs to be customized with the hydraulic functions needed in order to operate the different mechanisms onboard: foresail and staysail furler, winch, hydraulic cylinders for lockers. Mini power-packs are offered for either 12 or 24 Volts installations.

The standard mini hydraulic power-pack kit includes:

- steel and/or plastic reservoir
- electric motor
- solenoid valves with support
- breather pipe

WATT	LT/MIN	BAR	RESERVOIR LT.	VOLTAGE	CODE
800X1	1.5	50	7	12	135402006101
800X1	1.5	50	7	24	135402006201
1100X1	6	140	10	12	135403006101
1100X1	6	140	10	24	135403006201
2000X1	11	140	10	12	135405010101
2000X1	11	140	10	24	135405010201



Extra function with solenoid valve for power-pack:

VOLTAGE	CODE
12	135400000101
24	135400000201

(105) HYDRAULIC POWER-PACK

A.R.TE. presents a complete series of hydraulic power-packs to be customized with the hydraulic functions needed in order to operate the different mechanisms onboard: foresail and staysail furler, mainsail furler, outhaul, winch, windlass, hydraulic cylinders for various uses. Power-packs are offered for either 12 or 24 Volts installations, but on demand we may supply special applications. All hydraulic power-packs are supplied with an electric panel. After it has been assembled, each power-pack is tested with working pressures that will highlight possible defects.

The standard hydraulic power-pack kit includes:

- aluminium reservoir
- electric motor
- thermal sensor
- solenoid valves with support
- tropicalized fittings
- breather pipe
- transparent led caps for solenoid valves
- control box



MOTOR WATT	NUMBER OF FUNCTIONS	OIL FLOW AT 100 BARS		MAX WORKING PRESSURE bar	RESERVOIR CAPACITY		MAX ABSORPTION		CODE
		l/min	gal/min		l	gal	amp	volt	
2000 x 1	3	10	2,6	140	10	2,6	300	12	135205012103
2000 x 1	3	10	2,6	140	10	2,6	150	24	135205012203
3000 x 1	3	15	4,0	140	25	6,6	200	24	135207015203
3000 x 2	6	25	6,6	140	25	6,6	350	24	135207025206
3000 x 2	6	30	8,0	140	50	13,3	350	24	135207030206
4000 x 2	12	40	10,6	140	50	13,3	450	24	135209040212

Extra function with solenoid valve for power-pack

VOLTAGE	CODE
12	135200000101
24	135200000201

(115) ACCESSORIES FOR MINI- AND STANDARD HYDRAULIC POWER-PACKS

ACCESSORY	CODE
Oil for power-packs SHELL 46	202750146
Throttler (it controls oil speed)	901040300
Pressure reducing valve (it controls BARS)	901040400
Automatic pressure switch for hydraulic winches 2nd speed	901200100

(L10) ARCHED TEAK PASSERELLE "RIALTO"



Classical passerelle manufactured in first quality teak. It is characterised by its arched shape that, not only gives it an elegant look, but also makes it stable and resistant. Its weight makes it functional. In fact, being light-weight, it is easily stowed along the stanchions.

PASSERELLE LENGTH m	WEIGHT kg	SINGLE PIN	DOUBLE PIN	HALF-MOON PIN
1.8	9	180001010000	180001010200	180001010100
2.2	11	180001020000	180001020200	180001020100
2.6	13	180001030000	180001030200	180001030100

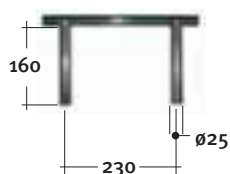
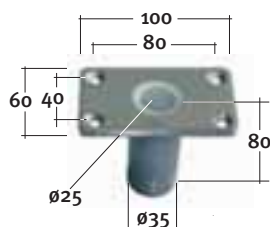
The passerelle standard kit includes:

- teak passerelle
- single, double or half moon pin
- s.s. terminals
- white plastic wheels

Optional material:

ACCESSORY

	CODE
Teak pole with textile and thimbles	901800101
Tackles + s.s. cables for side positioning	901800102
s.s. cup + Delrin bush (int. Ø 25 mm)	901800103
S.S. half-moon pin Ø 25 mm	901800104
S.S. "T" pin Ø 25 mm	901800105
S.S. double "T" pin Ø 25 mm	901800107
Delrin reduction bush (int. Ø 25 mm - ext. Ø 30 mm) - H. 80 mm	901800106
White wheel (pair)	901800200





(000) CUSTOM PRODUCTS

On demand, Bamar may create “custom” products based either on original project presented by the client, or on our design:

SHEAVES AND DECK ORGANISERS

High load sheaves to be used on Captive Winches, masts, booms. Such sheaves with diameters from 120 mm to 1000 mm, have a breaking load ranging from 4 to 120 tons.



PAD EYES

Disappearing pad eyes of various dimensions with breaking loads from 6 to 48 tons. They may be manufactured in different materials depending on where they have to be installed: stainless steel type AISI 316, SAF 2205 and 17-4PH.



CHAINPLATES

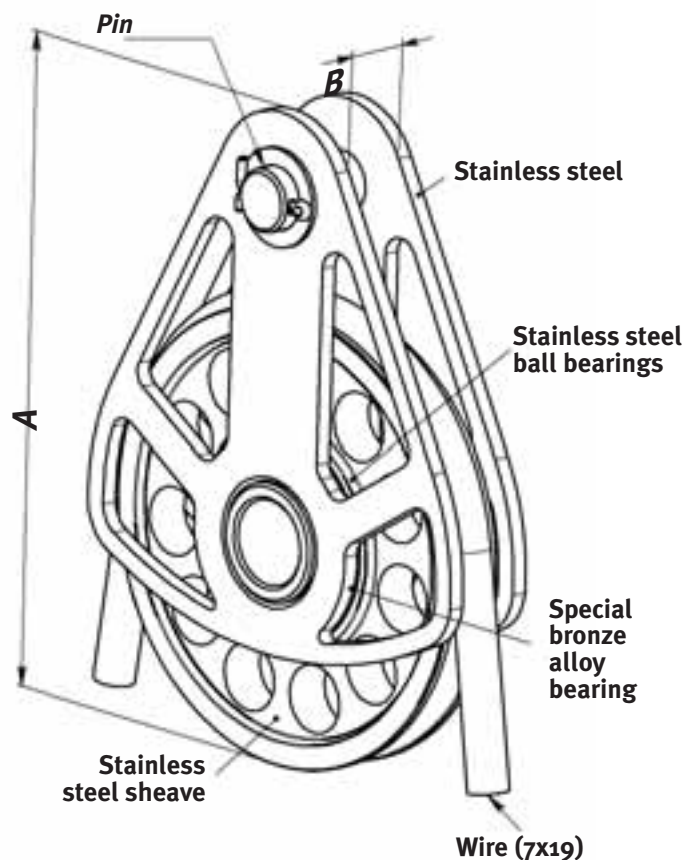
Moreover, we manufacture chainplates upon supply of drawings. We may use different materials: stainless steel type AISI 316, SAF 2205 and 17-4PH.



(090) S.S. STANDING BACKSTAY WIRE BLOCK

Special block to be used in order to split the backstay.

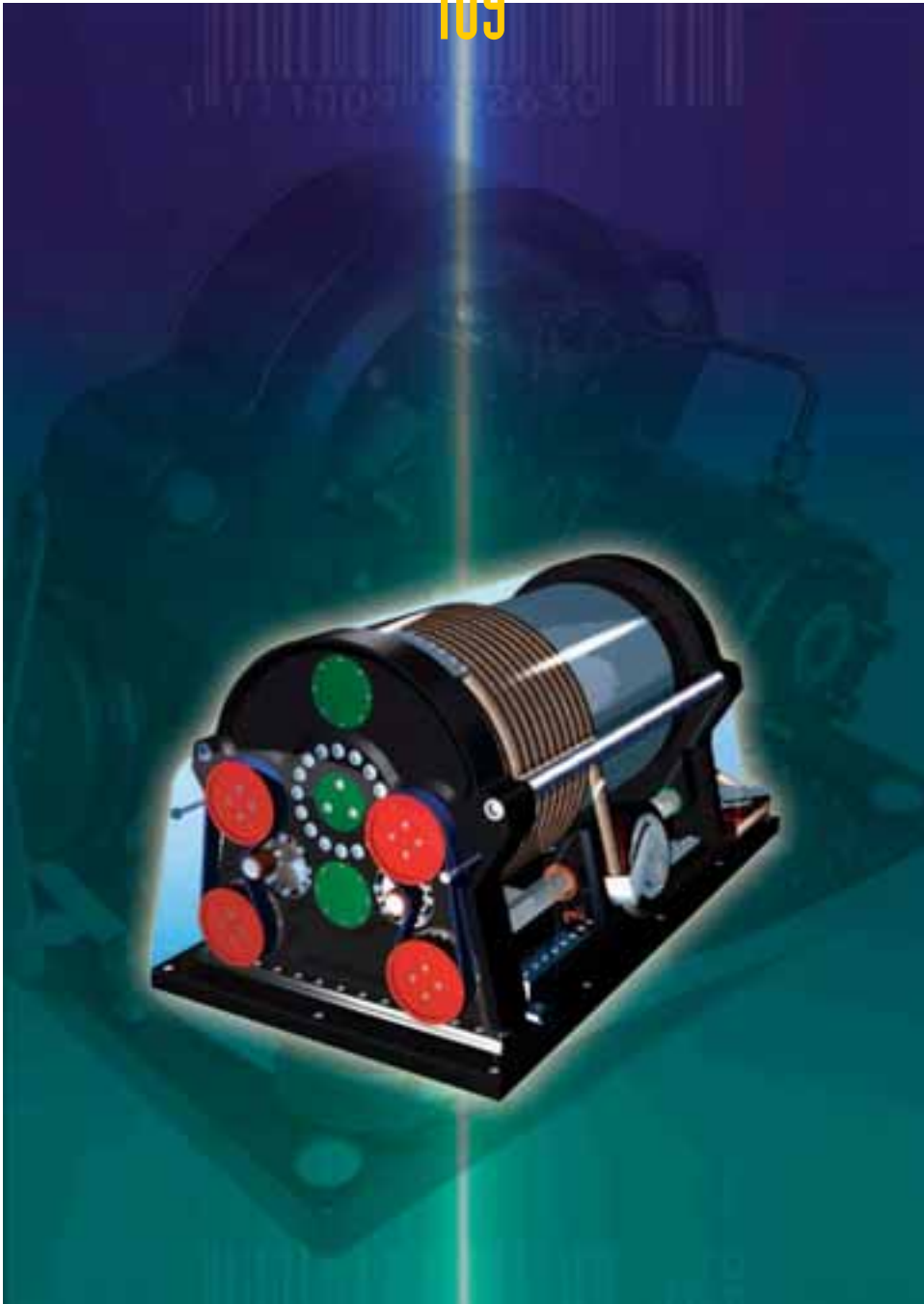
The stainless steel pulley has a specially shaped race that is compatible with multi-strand steel wires, guaranteeing long duration.



CODE	SHEAVE Ø		A		B		PIN Ø		WIRE Ø MAX		BREAKING LOAD		WEIGHT	
	mm	in	mm	in	mm	in	mm	in	mm	in	kg	lb	kg	lb
312020808	80	3,15	132	5,2	15	0,59	12,6	0,50	8	0,31	8.800	19.405	0,80	1,76
312021010	100	3,94	162	6,38	17	0,67	15,6	0,61	10	0,39	10.000	22.051	1,30	2,87
312021212	120	4,72	194	7,64	20	0,79	18,5	0,73	12	0,47	14.000	30.871	1,90	4,19



109



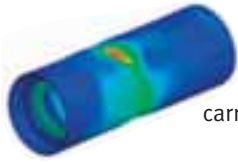
Bamar presents a new range of highly technological captive winches, for boats from 15 to 75 m and over.

CAPTIVE WINCH

(Poo) BAMAR CAPTIVE WINCH

Quality and technological innovation are the key points on which the manufacture of Bamar products is based.

A.R.TE.'s engineering developed the highly technological design of the Captive Winches, using materials and mechanical solutions that may obviate any possible unexpected event while sailing.



We cooperated with a team of engineers who designed and checked the critical points and the most stressed parts on the prototypes by carrying out Final Elements Analysis (FEA) and tests on test benches.

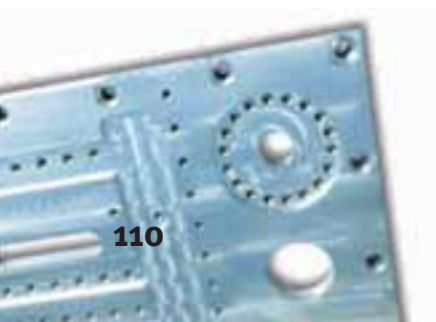


Captive Winches are manufactured at A.R.TE.'s workshop. This workshop is equipped with the most advanced CNC machinery, and employs highly technical personnel. These devices, made for sailing yachts from 15 m to 75 m and over, have technologically advanced characteristics that differ from other products present on the market.



Range of Captive winches with pull loads of 1.000, 2.000, 4.000, 8.000, 16.000, 24.000, 34.000 kg. and with holding loads of 1.500, 2.700, 5.000, 10.000, 20.000, 30.000, 42.000 kg.

- High mechanical efficiency (unique in its kind).
- Low noise.
- Routine maintenance (cleaning and lubrication of external parts every 6 months).
- Extraordinary maintenance (replacement of oil in the gearings, etc... every 5 years).
- Reduced overall dimensions.
- Flexible positioning, since the same BCW may be positioned with sheet exit either on the left or on the right, and with horizontal sheave integrated in the winch.
- Sheet tension controlled when "easing", thus preventing the sheet from slackening on the drum.
- Materials used: polished stainless steel and hardcote anodised aluminium.
- Safety: the BCW is protected by a partly transparent protection shield.
- Aesthetics especially cared for.
- Stroke end protection for car/sheave sheet-in/ease.
- Positioning: the base-plate may be positioned on an inclined or vertical surface.



BAMAR ELECTRIC OR HYDRAULIC CAPTIVE WINCH

All drums are manufactured in Stainless steel type Aisi 304 or 316 machined with CNC machines and polished.

All aluminium parts are made of high resistance aluminium alloy class 6000 thermally treated T6.

All aluminium parts are treated with hardcote anodising.

Transmission shafts in marine grade stainless steels.

BCW's are equipped with either belt, chain, or bevel drive.

BCW's are equipped with high efficiency Epicyclic reduction gears.



BCW's may be either electric or hydraulic, with fixed displacement motors (variable displacement on demand).

BCW's are equipped with n.2+2 micro-switches for end-stroke safety stop

BCW's may mount a load cell to monitor the loads on the sheet (not included, only upon demand). This cell will release a signal that can be used by your sail monitoring system.

All winches are tested in our premises in order to check the maximum dynamic pull load.

BCW's are supplied with an Electric slack sheet device, which prevents the sheet from slackening on the drum (standard supply).

BCW's are equipped with hydraulic fittings, and/or electric connectors, electric cables, electric junction box (box with terminals for the connection of signals) to be linked to the client's monitoring system.

BCW's may be either hydraulically or electrically driven. Electric versions run at 220-380 Volts, except for the models up to BCW4 that run at 24 Volts.

PAY OFF UNIT (not included)

Electrically and/or hydraulically driven sheave, used to facilitate the transfer of line to the deck.

The positioning and installation of these sheaves is up to the shipyard that will have to install them onboard checking the best route for each line.

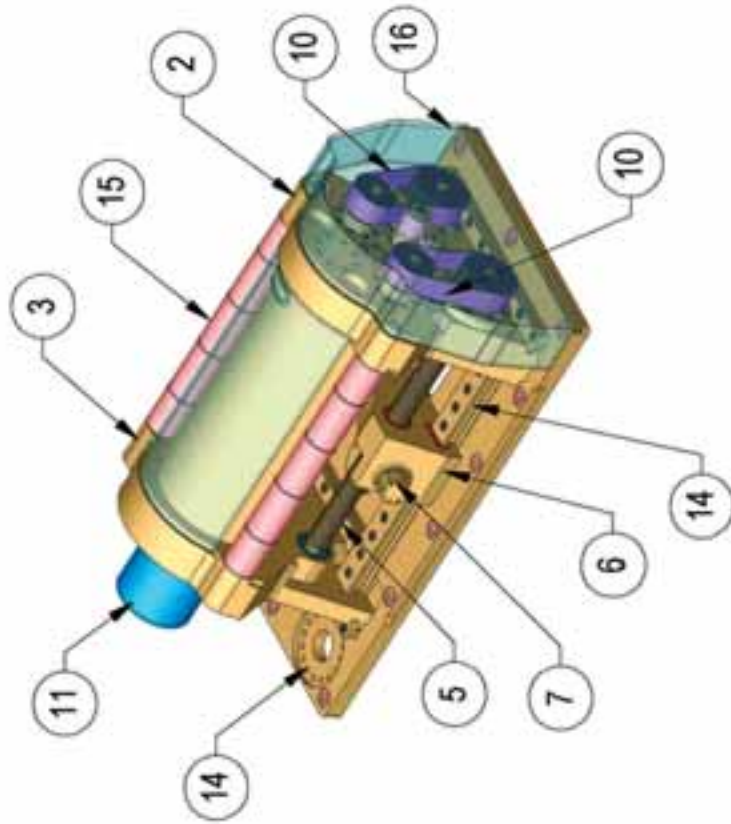
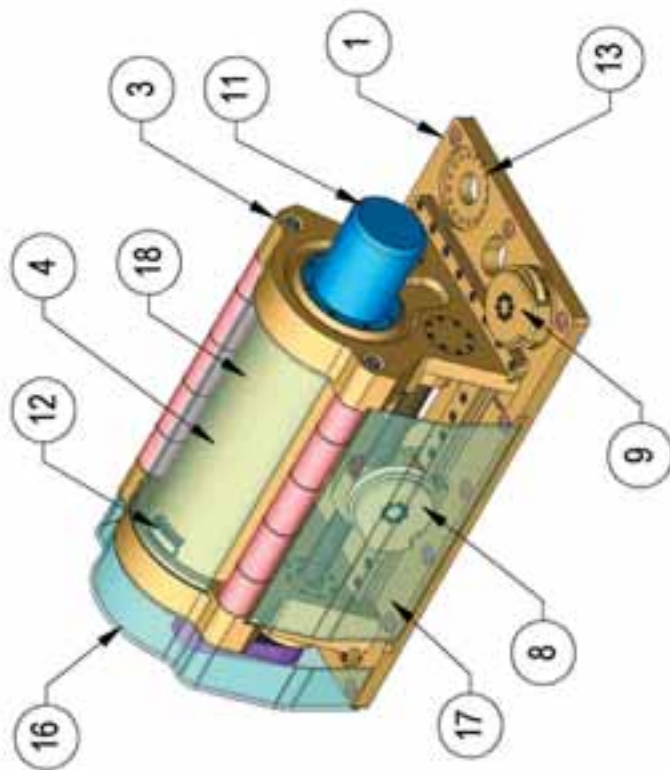
CONTROL BOX FOR ELECTRIC OR HYDRAULIC WINCH (not included)

It manages and controls the signals received by the sensors installed on the BCW, allowing you to regulate their intervention threshold. This application grants the winch's safety against accidental damages. Thus, the client will not have to check personally the machine and the signals sent by the sensors.

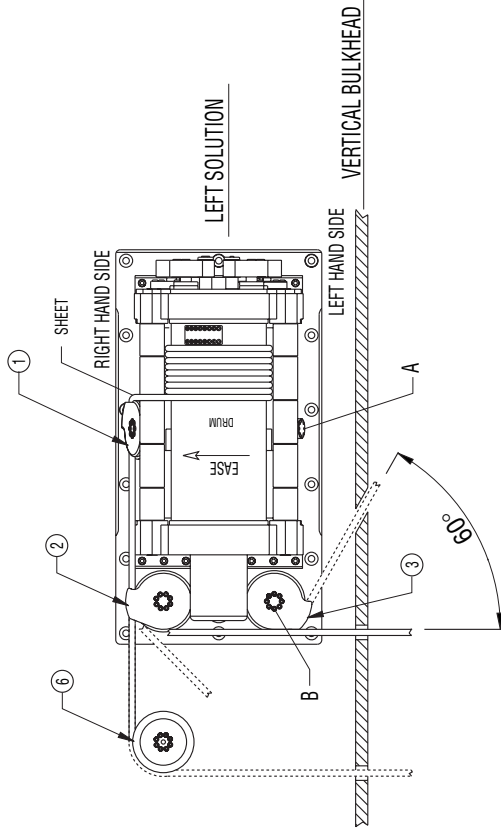
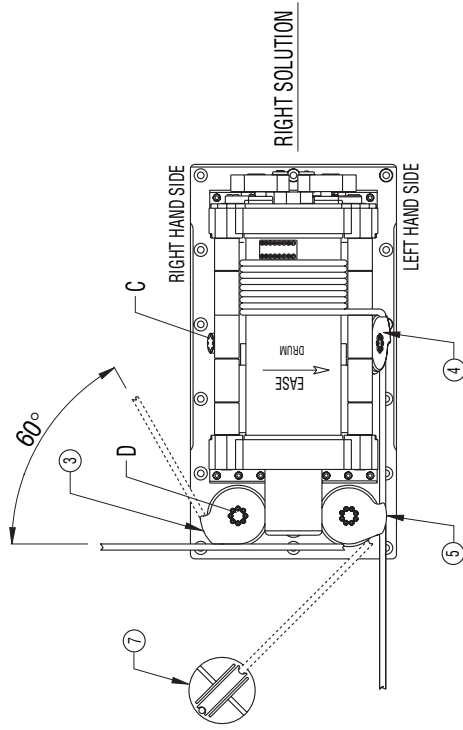
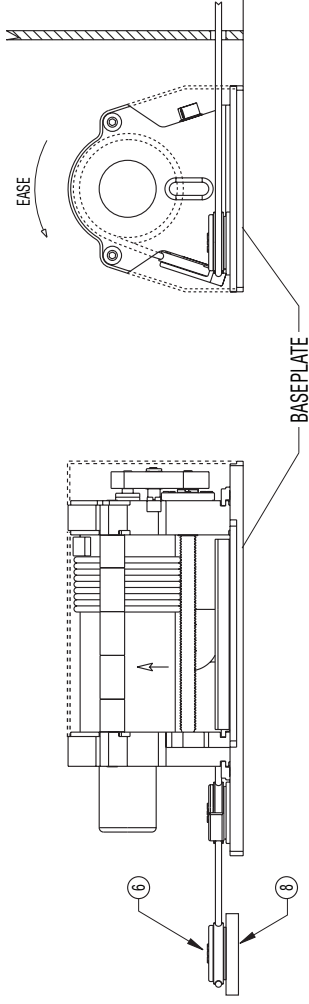
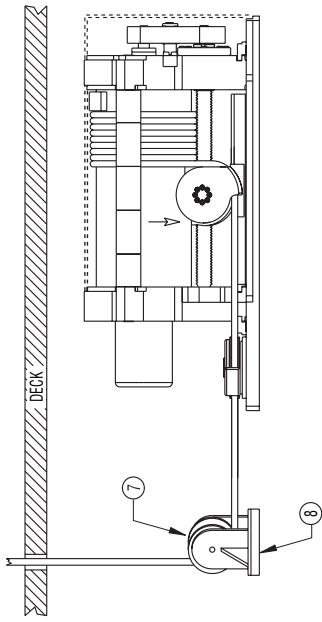
• The control box manages the following functions:

- stroke end - haul aft + extra stroke end - haul aft
- stroke end - ease away + extra stroke end - ease away
- it controls the tension of the sheet wrapped around the drum, in order to prevent the sheet from slackening on the drum during the easing away manoeuvre with low pull/load (indicative range from 10 to 50 kg).





	DESCRIPTION
1	ALUMINIUM BASE (HARDCOTE ANODIZED)
2	ALUMINIUM SIDE RISER (HARDCOTE ANODIZED)
3	ALUMINIUM SIDE RISER (HARDCOTE ANODIZED)
4	S.S. DRUM
5	WORM SCREW FOR SLIDE TRAVERSE (N.2)
6	SLIDE WITH VERTICAL PULLEY SUPPORT HUB
7	RH VERTICAL PULLEY SUPPORT HUB FOR BCW
8	LH VERTICAL PULLEY FOR BCW
9	LH HORIZONTAL LINE ORGANISER FOR BCW
10	BELT; CHAIN OR GEAR DRIVE
11	HYDRAULIC OR ELECTRIC MOTORIZATION
12	LINE CLAMP
13	RH HORIZONTAL LINE ORGANISER HOUSING
14	SLIDE ANCHORING (N.2)
15	SIDE RISERS SPACING BARS
16	DRIVE PROTECTION COWLS
17	SIDE PROTECTION COWLS (N.2)
18	UPPER PROTECTION COWL



NB: Bcw can be used with the outlet of the sheet on either right or left side.

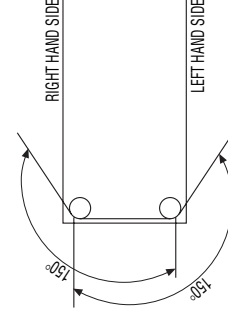
When the pulleys 5 and 1 are placed in A and B, the outlet is on the right side.
When the pulleys 5 and 1 are placed in C and D, the outlet is on the left side.

NB: Bcw può essere usato con l'uscita della scotta sia a dx che a sx.

Quando le pulegge 5 e 1 sono posizionate in A e B l'uscita è sul lato dx
Quando le pulegge 5 e 1 sono posizionate in C e D l'uscita è sul lato sx.

Description

Description	Descrizione
1 Vertical shaft for left bcw	Puleggia verticale per bcw sx
2 Horizontal shaft for left bcw (included)	Rinvio orizzontale per bcw sx (incluso)
3 Extra horizontal shaft block (optional)	Rinvio orizzontale supplementare (optional)
4 Vertical shaft for right bcw	Puleggia verticale per bcw dx
5 Horizontal shaft for right bcw (included)	Rinvio orizzontale per bcw dx (incluso)
6 Extra horizontal shaft block (optional)	Rinvio orizzontale supplementare (optional)
7 Extra vertical shaft (optional)	Rinvio verticale supplementare (optional)
8 Spacer	Distanziale
A Vertical shaft hub for right bcw	Mozzo supporto puleggia verticale per bcw dx
B Horizontal shaft housing for right bcw	Sede puleggia orizzontale per bcw dx
C Vertical shaft hub for left bcw	Mozzo supporto puleggia verticale per bcw sx
D Horizontal shaft housing for left bcw	Sede puleggia orizzontale per bcw sx



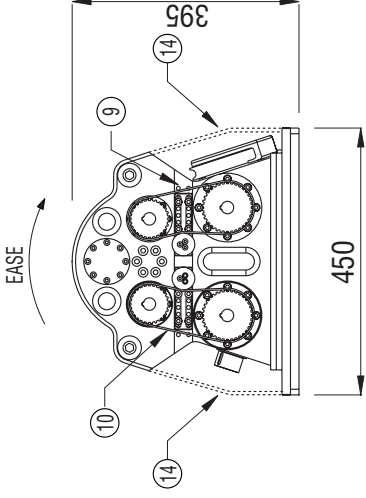
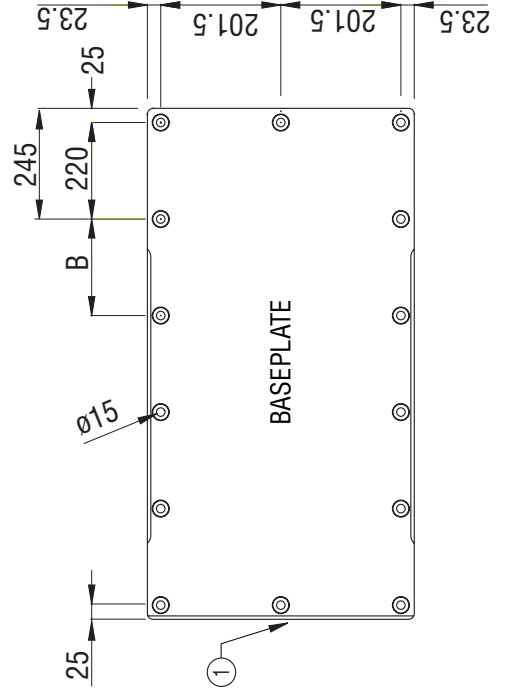
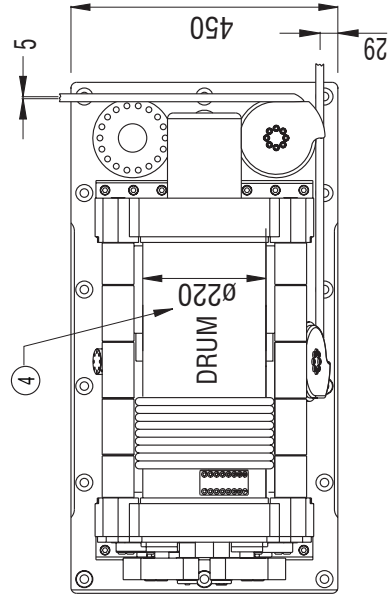
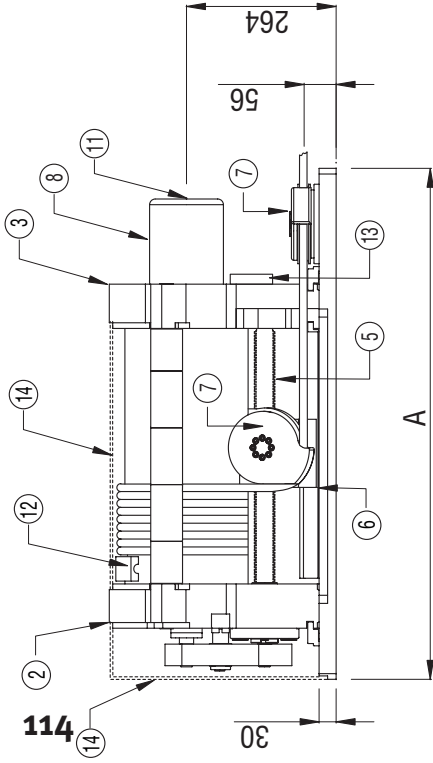
Technical data and drawings are indicative and not binding



VIA TALETE 2/A int.3 47100 FORLÌ ITALY
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ROPE OUTLET FROM BCW AND EXTRA PULLEYS	
BCW 4 HYDRAULIC OR ELECTRIC	
DATE	REVISION
02/01/03	NOTE
330990002	

Property of A.R.T.E. srl according to law, any reproduction and/or transfer of the present drawing to third parties is forbidden



Description	Descrizione
1 Baseplate	Basamento
2 Front upright	Montante anteriore
3 Back upright	Montante posteriore
4 Drum	Tamburo
5 Spindle	Vite senza fine
6 Slider	Slitta
7 Shaft	Puleggia
8 Hydraulic or electric motor	Motore idraulico o elettrico
9 Belt, or chain, or bevel drive	Trasmissione a cinghia, o a catena, o ad ingranaggi
10 Belt, or chain, or bevel drive	Trasmissione a cinghia, o a catena, o ad ingranaggi
11 Hydraulic / electric connection	Collegamenti tubi idraulici o cavi elettrici
12 Sheet lock	Bloccaggio cima
13 Electric junction box	Scatola connessione elettriche
14 Protection shield	Carenatura di protezione

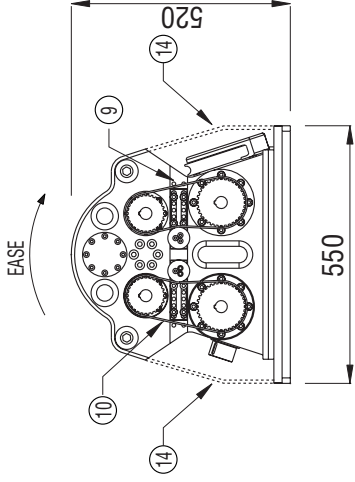
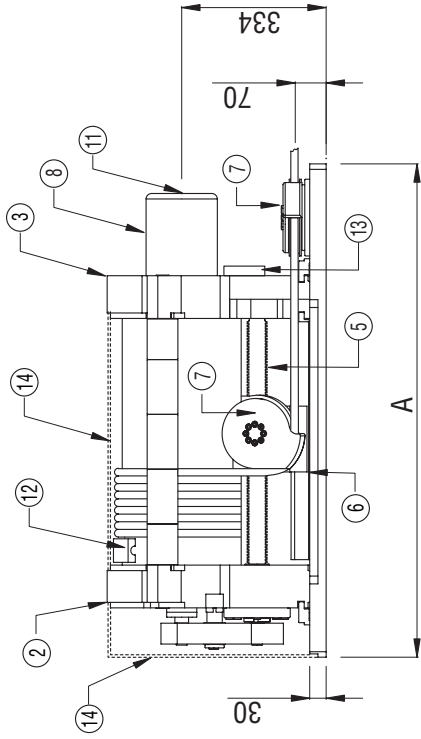
BCW 4	ROPES mm	DRUM STORAGE m	DIMENSION mm	
	$\varnothing 10$	$\varnothing 14$	$\varnothing 16$	$\varnothing 18$
	$\varnothing 12$	$\varnothing 16$	$\varnothing 18$	A
SMALL	25,0	21,0	18,0	15,0
MEDIUM	40,0	33,0	28,0	24,0
LARGE	54,0	45,0	38,0	33,0
				145**
				195**
				1250
				196**

* Su specifica richiesta del cliente

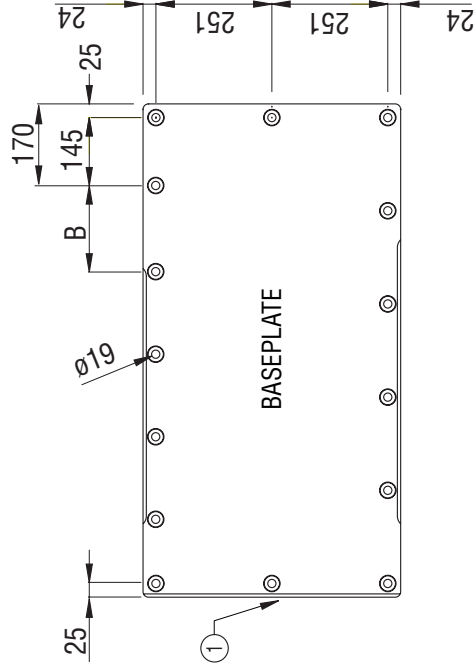
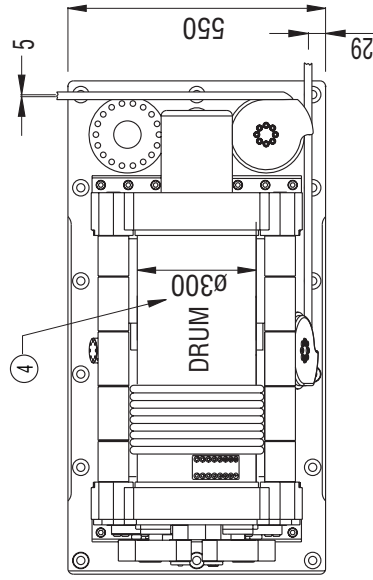
Upon customer's specific request

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Technical data are indicative and not binding

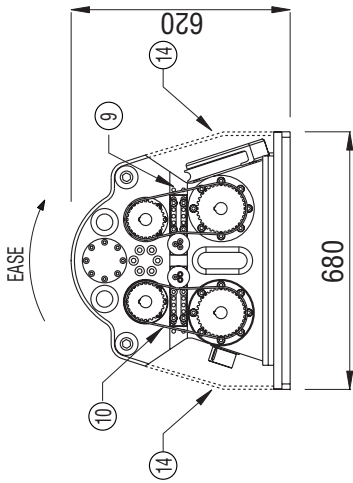
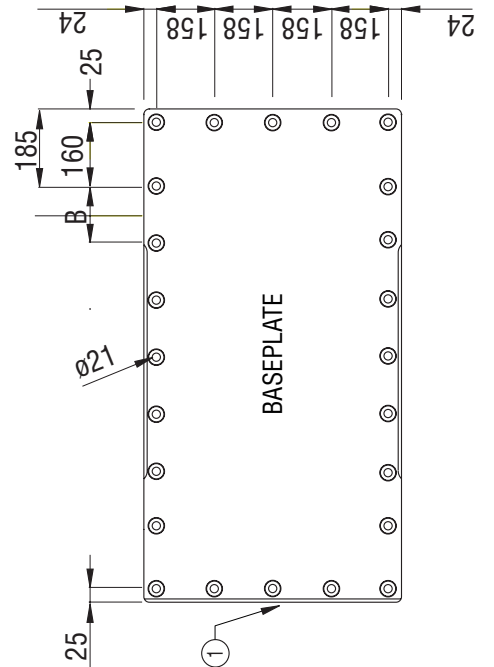
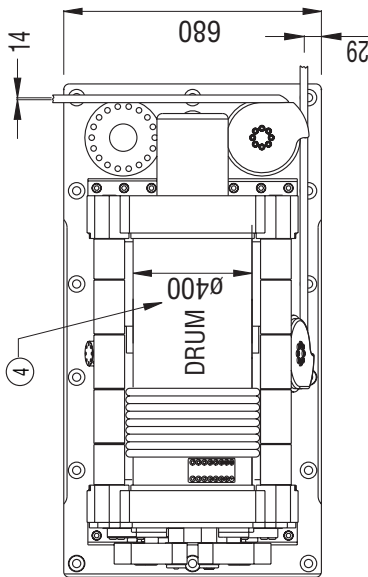
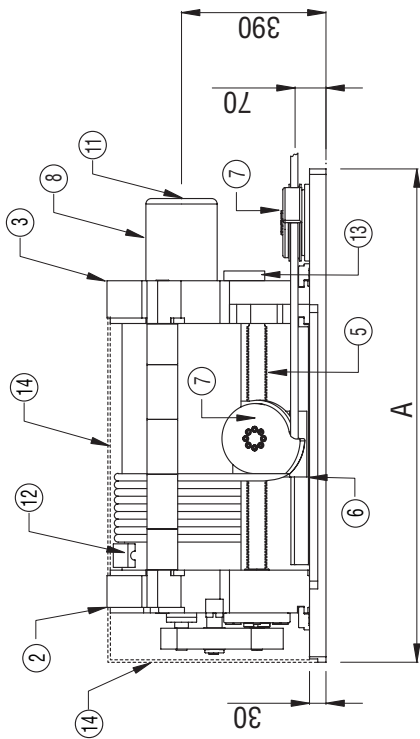


Description	Descrizione
1 Baseplate	Basamento
2 Front upright	Montante anteriore
3 Back upright	Montante posteriore
4 Drum	Tamburo
5 Spindle	Vite senza fine
6 Slider	Slitta
7 Shaft	Puleggia
8 Hydraulic or electric motor	Motore idraulico o elettrico
9 Belt, or chain, or bevel drive	Trasmissione a cinghia, o a catena, o ad ingranaggi
10 Belt, or chain, or bevel drive	Trasmissione a cinghia, o a catena, o ad ingranaggi
11 Hydraulic / electric connection	Collegamenti tubi idraulici o cavi elettrici
12 Sheet lock	Bloccaggio cima
13 Electric junction box	Scatola connessione elettriche
14 Protection shield	Carenatura di protezione



BCW 8	ROPES mm	DRUM STORAGE m	DIMENSION mm	
	Ø 16	Ø 20	Ø 24	A
SMALL	26,0	20,0	17,0*	1020
MEDIUM	38,0	30,0	25,0*	1220
LARGE	51,0	40,0	34,0*	1420
				165**
				171**
				175**

* Su specifica richiesta del cliente
 Upon customer's specific request
 ** I dati tecnici hanno carattere indicativo e non impegnativo
 Technical data are indicative and not binding




Description	Descrizione
1 Baseplate	Basamento
2 Front upright	Montante anteriore
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4 Drum	Tamburo
5 Spindle	Vite senza fine
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7 Shaft	Puleggia
8 Hydraulic or electric motor	Motore idraulico o elettrico
9 Belt, or chain, or bevel drive	Trasmissione a cinghia, o a catena, o ad ingranaggi
10 Belt, or chain, or bevel drive	Trasmissione a cinghia, o a catena, o ad ingranaggi
11 Hydraulic / electric connection	Collegamenti tubi idraulici o cavi elettrici
12 Sheet lock	Bloccaggio cima
13 Electric junction box	Scatola connessione elettriche
14 Protection shield	Carenatura di protezione

BCW 16	ROPES mm / DRUM STORAGE m		DIMENSION mm					
	Ø 20	Ø 22	Ø 24	Ø 26	Ø 28	Ø 30	A	B
SMALL	40,0	37,0	34,0	31,0	29,0	28,0	1330	160**
MEDIUM	53,0	49,0	45,0	41,0	39,0	37,0	1530	165**
LARGE	67,0	61,0	56,0	52,0	49,0	46,0	1730	190**
X LARGE	80,0	73,0	67,0	62,0	59,0	55,0	1930	191**
XX LARGE	93,0	85,0	78,0	72,0	69,0	64,0	2130	192**

* Su specifica richiesta del cliente
 Upon customer's specific request
 ** I dati tecnici hanno carattere indicativo e non impegnativo
 Technical data are indicative and not binding





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 VIA TALETE 2/A Int3 47100 FORLÌ ITALY
 http://www.bamar.it e-mail:arte@bamar.it

CAPTIVE WINCH MOD. BCW 16

HYDRAULIC OR ELECTRIC

DATE

02/01/03

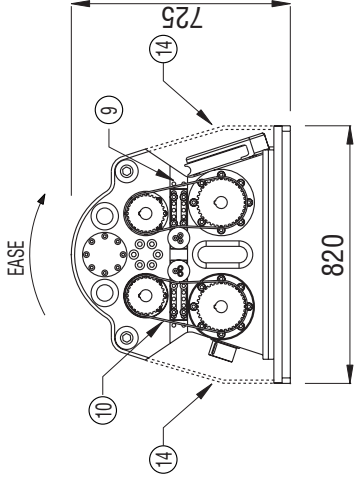
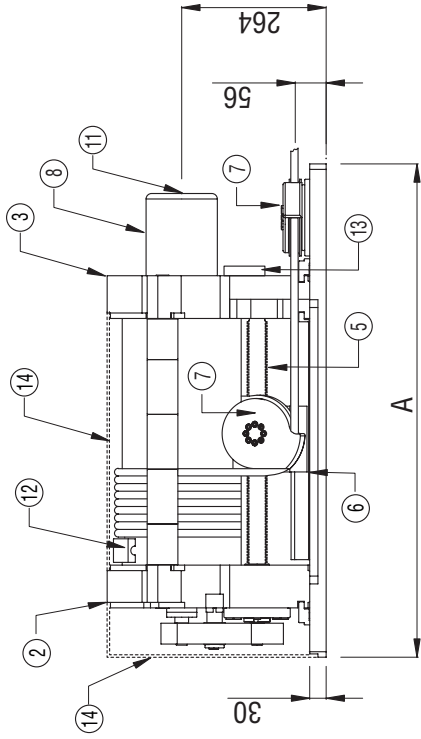
REVISION

NOTE

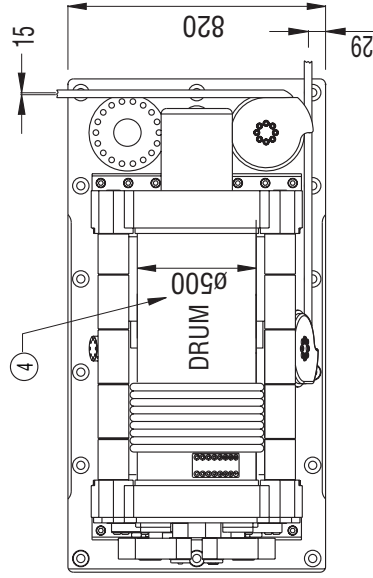
NOTE

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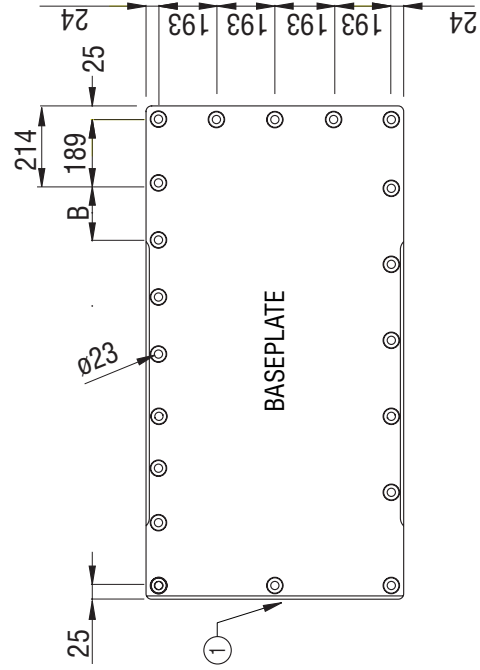
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Description	Descrizione
1 Baseplate	Basamento
2 Front upright	Montante anteriore
3 Back upright	Montante posteriore
4 Drum	Tamburo
5 Spindle	Vite senza fine
6 Slider	Slitta
7 Shaft	Puleggia
8 Hydraulic or electric motor	Motore idraulico o elettrico
9 Belt, or chain, or bevel drive	Trasmissione a cinghia, o a catena, o ad ingranaggi
10 Belt, or chain, or bevel drive	Trasmissione a cinghia, o a catena, o ad ingranaggi
11 Hydraulic / electric connection	Collegamenti tubi idraulici o cavi elettrici
12 Sheet lock	Bloccaggio cima
13 Electric junction box	Scatola connessione elettriche
14 Protection shield	Carenatura di protezione



BCW 24	ROPES mm	DRUM STORAGE m	DIMENSION mm
	Ø 26	Ø 30	Ø 32
	Ø 28	Ø 32	Ø 34
	Ø 26	Ø 30	A
	Ø 28	Ø 32	B
SMALL	50,5	43,5	40,5
MEDIUM	62,5	54,5	51,5
LARGE	75,5	70,5	61,5
X LARGE	88,5	82,5	72,5
XX LARGE	107,5	99,5	87,5
			155,5
			175,5
			195,5
			215,5
			245,5



* Su specifica richiesta del cliente
 Upon customer's specific request
 ** I dati tecnici hanno carattere indicativo e non impegnativo
 Technical data are indicative and not binding



Technical data and drawings are indicative and not binding



VIA TALETE 2/A int3 47100 FORLÌ ITALY
 http://www.bamar.it e-mail:arte@bamar.it

CAPTIVE WINCH MOD. BCW 24

HYDRAULIC OR ELECTRIC

DATE

02/01/03

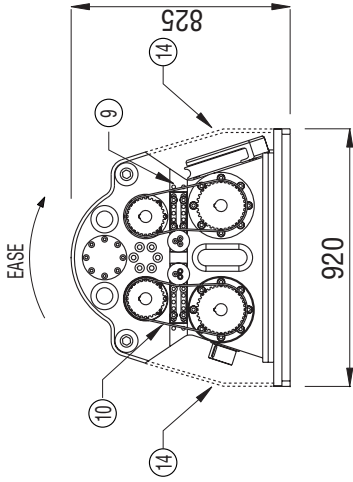
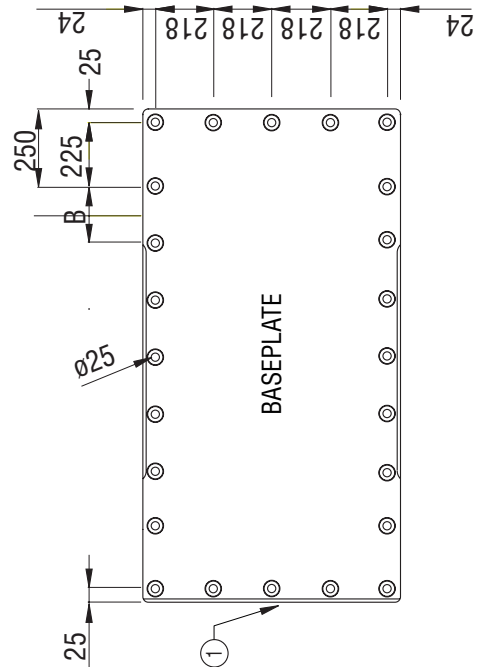
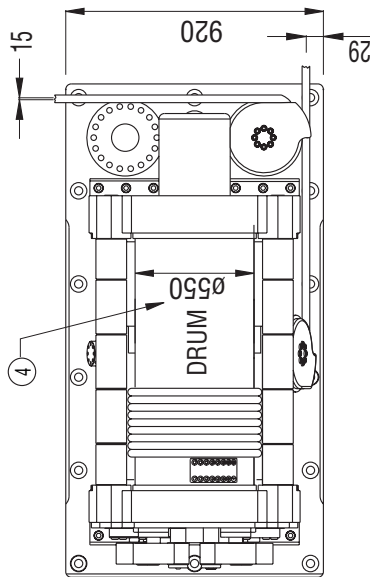
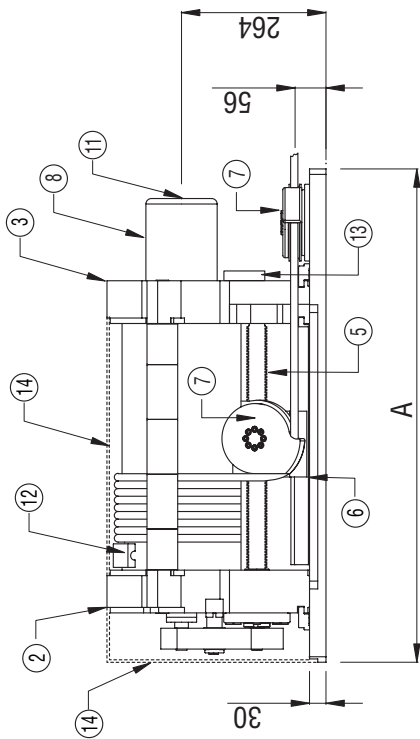
REVISION

NOTE

330990005

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Description	Descrizione
1 Baseplate	Basamento
2 Front upright	Montante anteriore
3 Back upright	Montante posteriore
4 Drum	Tamburo
5 Spindle	Vite senza fine
6 Slider	Slitta
7 Shaft	Puleggia
8 Hydraulic or electric motor	Motore idraulico o elettrico
9 Belt, or chain, or bevel drive	Trasmissione a cinghia, o a catena, o ad ingranaggi
10 Belt, or chain, or bevel drive	Trasmissione a cinghia, o a catena, o ad ingranaggi
11 Hydraulic / electric connection	Collegamenti tubi idraulici o cavi elettrici
12 Sheet lock	Bloccaggio cima
13 Electric junction box	Scatola connessione elettriche
14 Protection shield	Carenatura di protezione

BCW 34	ROPES mm / DRUM STORAGE		DIMENSION mm				
	Ø 30	Ø 32	Ø 34	Ø 36	Ø 38	A	B
SMALL	48,0	44,0	42,0	40,0	37,0*	1675	175**
MEDIUM	60,0	56,0	53,0	50,0	47,0*	1875	178**
LARGE	72,0	67,0	63,0	60,0	57,0*	2075	180**
X LARGE	84,0	78,0	74,0	70,0	67,0*	2275	200**
XX LARGE	102,0	95,0	90,0	86,0	81,0*	2575	200**

* Su specifica richiesta del cliente
 Upon customer's specific request
 ** I dati tecnici hanno carattere indicativo e non impegnativo
 Technical data are indicative and not binding

FIXED DISPLACEMENT CAPTIVE WINCHES – TECHNICAL DATA (option A)

CAPTIVE WINCH MODEL	-	BCWH 1	BCWH 2	BCWH 4	BCWH 8	BCWH 16	BCWH 24	BCWH 34
MAX DYNAMIC PULL	(N)	10.000	25.000	40.000	80.000	160.000	240.000	340.000
MAX STATIC PULL	(N)	15.000	30.000	50.000	100.000	200.000	300.000	420.000
DRUM DIAMETER	mm	-	-	220	300	400	500	550
LINE DIAMETER	mm	-	-	10-18	16-24	20-32	26-34	30-38
LINE SPEED WITH OIL FLOW "1"	m/min.	-	-	10,5	7,0	5,0	4,5	5,0
LINE SPEED WITH OIL FLOW "2"	m/min.	-	-	21,0	14,0	10,0	9,0	10,0
PRESSURE NEEDED FOR MAX DYNAMIC PULL	bar	-	-	233	220	226	231	237
MAX PRESSURE	bar	250	250	250	250	250	250	250
OIL FLOW OPTION "1"	l/min.	-	-	20	30	40	50	80
OIL FLOW OPTION "2"	l/min.	-	-	40	60	80	100	160
FIXED DISPLACEMENT MOTOR				A2FM10	A2FM23	A2FM56	A2FM107	A2FM160
WEIGHT	Kg	-	-	230	400	760	1200	1700

*All hydraulic winches mentioned above may be prepared (upon specific request) with other motor/reduction gear configurations in order to reach variable speeds up to 40 m/min.

FIXED DISPLACEMENT CAPTIVE WINCHES – TECHNICAL DATA (option B)

CAPTIVE WINCH MODEL	-	BCWH 1	BCWH 2	BCWH 4	BCWH 8	BCWH 16	BCWH 24	BCWH 34
MAX DYNAMIC PULL	(N)	10.000	25.000	40.000	80.000	160.000	240.000	340.000
MAX STATIC PULL	(N)	15.000	30.000	50.000	100.000	200.000	300.000	420.000
DRUM DIAMETER	mm	-	-	220	300	400	500	550
LINE DIAMETER	mm	-	-	10-18	16-24	20-32	26-34	30-38
LINE SPEED WITH OIL FLOW "1"	m/min.	-	-	8,5	6,0	4,5	3,5	4,0
LINE SPEED WITH OIL FLOW "2"	m/min.	-	-	17,0	12,0	9,0	7,0	8,0
PRESSURE NEEDED FOR MAX DYNAMIC PULL	bar	-	-	201	178	201	197	190
MAX PRESSURE	bar	250	250	250	250	250	250	250
OIL FLOW OPTION "1"	l/min.	-	-	20	30	40	50	80
OIL FLOW OPTION "2"	l/min.	-	-	40	60	80	100	160
FIXED DISPLACEMENT MOTOR				A2FM12	A2FM28	A2FM63	A2FM125	A2FM200
WEIGHT	Kg	-	-	230	400	760	1200	1700

*All hydraulic winches mentioned above may be prepared (upon specific request) with other motor/reduction gear configurations in order to reach variable speeds up to 40 m/min.



VARIABLE DISPLACEMENT CAPTIVE WINCHES – TECHNICAL DATA

CAPTIVE WINCH MODEL	-	BCWH 1	BCWH 2	BCWH 4	BCWH 8	BCWH 16	BCWH 24	BCWH 34
MAX DYNAMIC PULL	(N)	10.000	25.000	40.000	80.000	160.000	240.000	340.000
MAX STATIC PULL	(N)	15.000	30.000	50.000	100.000	200.000	300.000	420.000
DRUM DIAMETER	mm	-	-	220	300	400	500	550
LINE DIAMETER	mm	-	-	10-18	16-24	20-32	26-34	30-38
MINIMUM LINE SPEED (TRIM)	m/min.	-	-	-	7,6	6,2	6,6	6,0
MAX LINE SPEED (WITH NO LOAD)	m/min.	-	-	-	21,5	21,5	20,5	19,5
PRESSURE NEEDED FOR MAX DYNAMIC PULL	bar	-	-	-	177	231	231	237
PRESSURE MAX	bar	250	250	250	250	250	250	250
OIL FLOW AT MAXIMUM SPEED	l/min.	-	-	-	40	50	80	100
VARIABLE DISPLACEMENT MOTOR					A6VM28	A6VM55	A6VM107	A6VM160
WEIGHT	Kg	-	-	230	400	760	1200	1700

*All hydraulic winches mentioned above may be prepared (upon specific request) with other motor/reduction gear configurations in order to reach variable speeds up to 40 m/min.

Technical data and drawings are indicative and not binding

Captive winches are available also in the electric version; technical data, not shown in the tables above, are to be defined for each single project.

(W01) DURALAC

A.R.T.E. srl distribuisce in esclusiva per l'Italia Duralac, un mastice anticorrosione per giunzioni.

Forma:

Duralac Jointing Compound è una pasta gialla ottenuta da una vernice elastica a bassa permeabilità all'umidità, da un inerte anticorrosivo, il cromato di bario ed un inerte di riempimento. E' conforme alle specifiche D.T.D. 369B.

Uso:

Indispensabile per la tenuta di giunti in metalli aventi caratteristiche diverse, incluso magnesio e leghe derivate, adatto per la protezione di metallo a contatto con legno, strutture in resina sintetica, cuoio, gomma, ecc...

Quando i componenti di una struttura sono realizzati con materiali diversi, è fondamentale che i punti o le facce a contatto vengano trattate con materiali anticorrosione. Questo perché in presenza di elettroliti insorgono notevoli differenze di potenziale non solo nei punti di contatto di metalli diversi, ma anche laddove entrino a contatto componenti realizzati con gli stessi metalli ma sottoposti a sollecitazioni diverse, come, ad esempio, tra lamiere o estrusioni in lega di alluminio e rivetti o bulloni utilizzati per il montaggio.

Nelle aree industriali dove le strutture sono esposte all'azione di condotti fumo e vapori acidi e nelle zone marine dove l'atmosfera salina entra a contatto con tali strutture, occorre la massima attenzione per evitare la corrosione derivante dalle cellule elettrolitiche che si formano a seguito del depositarsi dell'umidità salina.

Applicazione:

Duralac è un prodotto pronto all'uso e non deve essere diluito. È applicabile a pennello. All'applicazione di Duralac su metallo o altra superficie, il solvente volatile evapora ed il composto si posa, ma resta bagnato per lungo tempo. È importante serrare la giunzione quando Duralac è ancora bagnato in modo che, in tale condizione, possa fluire con pressione sufficiente per chiudere gli interstizi del giunto. Si indurisce leggermente se la sottile pellicola resta esposta all'aria per un lungo periodo, rendendo impossibile l'ermeticità del giunto.

Confezioni:

Duralac viene fornito in tubetti da 115 ml e barattoli da 250 ml, 500 ml, 1000 ml e 5000 ml (i barattoli sono disponibili solo per grossi ordinativi).



CONFEZIONE

Tubetto da 115 ml

Scatola da 12 tubetti da 115 ml

Barattolo

Confezioni (12)

Confezioni (24)

Confezioni (36)

250 ml

500 ml

1000 ml

5000 ml

CODICE

199001010000

199001020000

199001030000

199001040000

199001050000

199001060000

199001070000

199001080000





APPENDIX

TECHNICAL GUIDE

When installing our products you often need to drill and thread holes, and make calculations of components, therefore we have integrated the catalogue with technical tables that may help you while carrying out your tasks.

You will also find a conversion table between °C and °F, and conversion tables between metric and imperial measurements.

THREAD AND DRILL TABLE

MA pitch SCREW	mm	2	2,5	3	4	5	6	8	10	12	14	16
Hole to thread	mm	1,6	2,05	2,5	3,25	4,25	5	6,75	8,5	10,25	12	14

WEIGHT CONVERSION TABLE

Conversions from:	to:	divide by
grams (g)	ounces (oz.)	28,35
kilograms (Kg)	Pounds (lb.)	0,4535
Conversions from:	to:	multiply by
ounces (oz.)	grams (g)	28,35
Pounds (lb.)	kilograms (Kg)	0,4535

LENGTH CONVERSION TABLE

Conversions from:	to:	divide by
metres (m)	feet (ft)	0,30480
centimetres (cm)	feet (ft)	30,48
millimetres (mm)	feet (ft)	304,80
metres(m)	inches (in)	0,0254
centimetres (cm)	inches (in)	2,54
millimetres (mm)	inches (in)	25,40
Conversions from:	to:	multiply by
feet (ft)	metres (m)	0,30480
feet (ft)	centimetres (cm)	30,48
feet (ft)	millimetres (mm)	304,80
inches (in)	metres (m)	0,0254
inches (in)	centimetres (cm)	2,54
inches (in)	millimetres (mm)	25,40

AREA CONVERSION TABLE

Conversions from:	to:	divide by
square metres (m ²)	square feet (ft ²)	0,0929
square centimetres (cm ²)	square feet (ft ²)	929,00
square metres (m ²)	square inches (in ²)	0,00064516
square centimetres (cm ²)	square inches (in ²)	6,4516
square millimetres (mm ²)	square inches (in ²)	645,16
Conversions from:	to:	multiply by
square feet (ft ²)	square metres (m ²)	0,0929
square feet (ft ²)	square centimetres (cm ²)	929,00
square inches (in ²)	square metres (m ²)	0,00064516
square inches (in ²)	square centimetres (cm ²)	6,4516
square inches (in ²)	square millimetres (mm ²)	645,16

VOLUME AND CAPACITY CONVERSION TABLE

Conversions from:	a:	divide by
litres (l)	gallons (gal)	3,7854
Conversions from:	a:	multiply by
gallons (gal)	litres (l)	3,7854

FORCE CONVERSION TABLE

Conversions from:	to:	divide by
newton (N)	kilogram force (kgf)	9,8067
Conversions from:	to:	multiply by
kilogram force (kgf)	newton (N)	9,8067

CELSIUS & FAHRENHEIT THERMOMETRIC SCALE

$^{\circ}\text{C} = (^{\circ}\text{F} - 32) / 1,8$	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40
$^{\circ}\text{F} = (^{\circ}\text{C} \times 1,8) + 32$	-22	-13	-4	5	14	23	32	41	50	59	68	77	86	95	104

BREAKING LOAD AND DIMENSIONAL COMPARATIVE TABLE OF SPECIALIZED EQUIPMENT

NITRONIC 50 OYS				
ROD SIZE	NOMINAL Ø		BREAKING LOAD	
	mm	in	kg	lb
-3	4,00	0,16	1860	4100
-4	4,50	0,18	2140	4700
-6	5,00	0,20	2850	6300
-8	5,70	0,22	3700	8200
-10	6,35	0,25	4680	10300
-12	7,10	0,28	5670	12500
-15	7,50	0,30	6600	14500
-17X	8,35	0,33	7858	17300
-17	8,50	0,33	8000	17600
-22	9,50	0,37	10220	22500
-26	10,30	0,41	11991	26400
-30	11,10	0,44	13600	30000
-40	12,70	0,50	18409	40600
-44	13,50	0,53	20070	44200
-48	14,30	0,56	21800	48100
-55	15,30	0,60	25043	55200
-60	16,76	0,66	30000	66100
-76	17,90	0,70	34483	76000
-91	19,50	0,77	41289	91000
-115	22,20	0,87	52178	115000
-150	25,40	1,00	68058	150000
-170	27,10	1,07	77132	170000
-195	28,60	1,13	88475	195000
-220	30,30	1,19	99819	220100
-260	33,40	1,31	117967	260100
-320	38,10	1,50	145191	320100
-360	41,28	1,63	163339	360100
-430	44,45	1,75	195100	430100
-540	50,80	2,00	245009	540100
-640	57,15	2,25	290381	640100
-750	63,50	2,50	340290	750200
-1000	76,20	3,00	453720	1000200

NITRONIC 50 NAVTEC				
ROD SIZE	NOMINAL Ø		BREAKING LOAD	
	mm	in	kg	lb
-4	4,37	0,172	2140	4700
-6	5,03	0,198	2860	6300
-8	5,72	0,225	3730	8200
-10	6,35	0,250	4680	10300
-12	7,14	0,281	5680	12500
-15	7,52	0,296	6480	14250
-17	8,38	0,330	7950	17500
-22	9,53	0,375	10200	22500
-30	11,10	0,437	13600	30000
-40	12,70	0,500	17300	38000
-48	14,27	0,562	21800	48000
-60	16,76	0,660	27300	60000
-76	17,91	0,705	34500	76000
-91	19,51	0,768	40900	90000
-115	22,23	0,875	52300	115000
-150	25,40	1,000	68200	150000
-170	27,08	1,066	77300	170000
-195	28,58	1,125	86400	190000
-220	30,25	1,191	98600	217000
-260	33,35	1,313	118000	260000
-320	38,10	1,500	145000	320000
-400	44,45	1,750	182000	400000

1x19 s.s. WIRE 316				
NOMINAL Ø	BREAKING LOAD			
	mm	in	kg	lb
2			336	740
2,5			525	1150
3	1/8		756	1670
4	5/32		1340	2900
4,76	3/16		1750	3800
5			2100	4600
5,56	7/32		2435	5300
6			2910	6400
6,35	1/4		3190	7000
7	9/32		3850	8500
8	5/16		5040	11100
9			5850	12900
9,53	3/8		6550	14450
10			7870	17300
11	7/16		8750	19300
12			10600	23400
12,7	1/2		11600	25500
14	9/16		13400	29500
16	5/8		17400	38400
19	3/4		21600	47600
22	7/8		29000	64000
26	1		40600	90000
28	1 1/8		52600	116000
30	1 3/16		58800	130000
32	1 1/4		62800	140000

DYFORM s.s. WIRE 316			
NOMINAL Ø	CONSTRUCTION	BREAKING LOAD	
		kg	lb
2,5	1 X 7	690	1500
3	1 X 7	1000	2200
3,5	1 X 7	1350	3000
4	1 X 7	1780	3900
5	1 X 19	2440	5400
6	1 X 19	3550	7800
7	1 X 19	4910	10800
8	1 X 19	6150	13600
10	1 X 19	9770	21600
12	1 X 19	14400	31800
14	1 X 25	19300	42600
16	1 X 25	25600	56500
19	1 X 31	32000	70600

7x19 s.s. WIRE			
NOMINAL Ø	CONSTRUCTION	BREAKING LOAD	
		kg	lb
5	7X19	1400	3086
6	7X19	2100	4630
7	7X19	3100	6834
8	7X19	3800	8377
10	7X19	6000	13278
12	7X19	8600	18960

FLEXIBLE KEVLAR CABLE							
EQUIVALENT ROD SIZE N-50 ROD	KEVLAR SIZE	COATED KEVLAR Ø		MIN. BREAKING LOAD		ROD WEIGHT	
		in	mm	lb	kg	lb/ft	g/m
-4	3T	0,31	8,0	6.620	3.000	0,04	66
-6	3T	0,31	8,0	6.620	3.000	0,04	66
-10	5T	0,39	9,9	11.030	5.000	0,06	89
-12	7T	0,47	12,0	15.440	7.000	0,09	130
-17	9T	0,52	13,1	19.850	9.000	0,09	140
-22	12T	0,59	15,0	26.460	12.000	0,12	185
-30	15T	0,66	16,8	33.080	15.000	0,15	216
-40	20T	0,75	19,1	44.100	20.000	0,20	290
-48	25T	0,87	22,0	55.130	25.000	0,26	390
-60	31T	0,98	25,0	68.360	31.000	0,35	520
-76	43T	1,14	28,9	94.820	43.000	0,45	670
-91	54T	1,27	32,3	119.070	54.000	0,59	871

RIGID KEVLAR CABLE							
EQUIVALENT ROD SIZE N-50 ROD	KEVLAR SIZE	COATED KEVLAR Ø		MIN. BREAKING LOAD		ROD WEIGHT	
		in	mm	lb	kg	lb/ft	g/m
-4	0,220	0,22	5,6	6.460	2.930	0,022	32
-6	0,250	0,25	6,4	8.350	3.790	0,028	42
-8	0,312	0,31	7,9	13.000	5.900	0,048	72
-10	0,312	0,31	7,9	13.000	5.900	0,048	72
-12	0,375	0,38	9,5	18.800	8.530	0,067	99
-17	0,437	0,44	11,1	25.500	11.600	0,084	125
-22	0,500	0,50	12,7	33.400	15.100	0,110	164
-30	0,625	0,63	15,9	52.200	23.700	0,141	210
-40	0,625	0,63	15,9	52.200	23.700	0,141	210
-48	0,750	0,75	19,1	75.100	34.100	0,255	380
-60	0,875	0,88	22,2	102.000	46.300	0,322	480
-76	0,875	0,88	22,2	102.000	46.300	0,436	649
-91	1,000	1,00	25,4	134.000	60.800	0,570	848

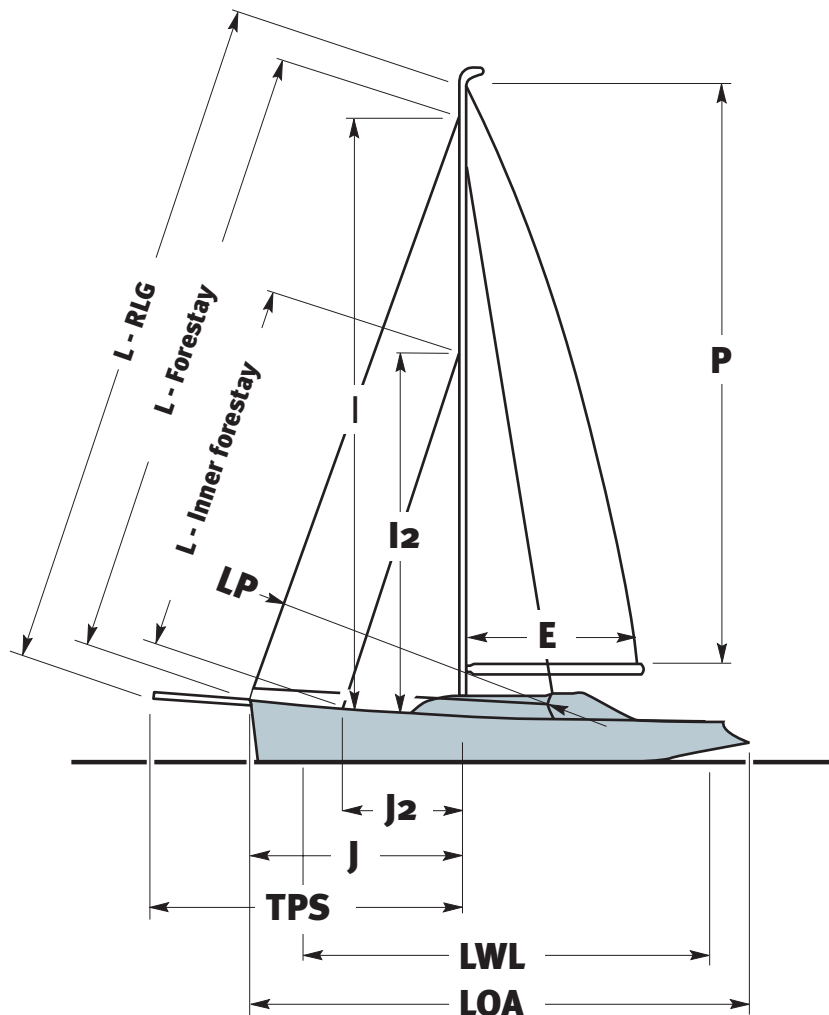
T90 POLYESTER HALYARD			GM112 POLYESTER SHEET		SK75 CLASSIC DYNEEMA		SK75 RACE DYNEEMA	
LINE Ø mm	BREAKING LOAD		BREAKING LOAD	LINEAR WEIGHT	BREAKING LOAD	LINEAR WEIGHT	BREAKING LOAD	LINEAR WEIGHT
	kg	g/m						
3			350	8				
4			540	13				12,4
5							1625	17,4
6	750	26	780	26	1700	25,3	2425	25,2
7							2850	32,2
8	1300	45	1300	45	3100	47,7	3850	47,6
9								
10	2350	69	2150	76	4590	66,6	5950	70,1
12	2950	100	2800	107	6430	94,2	8475	105,8
14	4100	142	3700	137	7870	132,2	11000	141,3
16	5700	185	4600	178	9680	159,1	14100	170,6
18	6700	228	6350	223	12560	184,1	17150	200
20	8150	255	7300	262			20500	250
22			8300	315			23520	289
24			10200	385				

Line values have been supplied by the company Gottifredi Maffioli and may vary without previous notice.

Table values have been measured in laboratory conditions on new samples with both ends spliced. Nevertheless, breaking loads may undergo a reduction up to 25%.

TABLE WITH TECHNICAL DIMENSIONAL DEFINITIONS OF SAIL PLAN

- LOA** boat's overall length
- LWL** boat's length at water-line
- I** height of forestay triangle, measured between deck and stay connection on the mast.
- I₂** height of inner forestay triangle, measured between deck and inner forestay connection on the mast.
- J** base of forestay triangle, measured between mast fore face and forestay chain-plate.
- J₂** base of inner forestay triangle, measured between mast fore face and inner forestay chain-plate.
- L** forestay length
- L** inner forestay length
- L - RLG** (RollGen stay length) distance between the tack point on the bowsprit and the (spinnaker) halyard block
- TPS** distance between mast fore face and padeye on the bowsprit.
- P** length of mainsail luff
- E** mainsail base
- LP** minimum distance between stay and jib clue.



INFORMATIVE SHEETS TO HELP PLACING ORDERS

In order to choose the articles and to find the accessories that will complete the product you want to buy, you have to find out measurements and other pieces of information onboard. You may use the informative sheets below as an indication when you place your orders.

INFORMATIVE SHEET FOR THE CHOICE OF A MANUAL EXTERNAL MAINSAIL FURLER "RGEM" (A10)

In order to choose the manual mainsail furler, you have to take some measures on the mast. You may use the "guiding" sheet below as a reference: it will help you finding the elements to be used in the choice of the various elements required for the installation.

Mainsail luff length (P): _____ mm, mainsail base length (E): _____ mm
 Mast shape, make sure it mates with the system's external foil.
 N.B.: check the vertical dimension of the manual mechanism, make sure the coil drive can be located below the sail tack.
 Diameter of the original vertical pin on the boom toggle (needed in order to supply you with the bushes and the right pin with nut).
 Standard colour is silver anodizing.

Now you just have to place the order for the manual external mainsail furler, the accessories needed to adapt it to the mast, if necessary, and the accessories needed to control the system from the cockpit:

Materials for manual mainsail furler:

Mainsail furler RGEM	:code _____	q.ty _____
External foil extra colour	:code _____	q.ty _____
Adapting foil	:code _____	q.ty _____

Materials to control the system from the cockpit:

Ball bearing built-in block (if needed)	:code _____	q.ty _____
Outhaul line	:code _____	q.ty _____

INFORMATIVE SHEET FOR THE CHOICE OF ELECTRIC EXTERNAL MAINSAIL FURLER "RGEEL" (A12)

In order to choose the electric mainsail furler, you have to take some measures on the mast. You may use the "guiding" sheet below as a reference: it will help you finding the elements to be used in the choice of the various elements required for the installation.

Mainsail luff length (P): _____ mm, mainsail base length (E): _____ mm
 Mast shape, make sure it mates with the system's external foil.
 N.B.: check the vertical dimension of the mechanism, make sure the motorization can be located below the sail tack.
 Diameter of the original vertical pin of the boom toggle (needed in order to supply you with the bushes and the right pin with nut).
 Standard colour is silver anodizing.
 Boat's voltage: 12 or 24 V

Now you just have to place the order for the electric external mainsail furler, the accessories needed to adapt it to the mast, if necessary, and the accessories for the electric plant:

Materials for electric mainsail furler:

Mainsail furler RGEEL	:code _____	q.ty _____
External foil extra colour	:code _____	q.ty _____
Adapting foil	:code _____	q.ty _____

Materials to control the system from the cockpit:

Ball bearing built-in block (if needed)	:code _____	q.ty _____
Outhaul line	:code _____	q.ty _____

Materials for the electric plant:

Through deck fitting (90° Ø 15 mm)	:code _____	q.ty _____
"Boxtron" electronic control 6-60 A	:code _____	q.ty _____
Toggle switch	:code _____	q.ty _____
Watertight remote control with cable	:code _____	q.ty _____
Radio Kit (it includes 1 radio transmitter)	:code _____	q.ty _____
Radio transmitter for 1 motorization	:code _____	q.ty _____
Radio transmitter for 2 motorizations	:code _____	q.ty _____

INFORMATIVE SHEET FOR THE CHOICE OF THE ELECTRIC MOTORIZATION FOR EXTERNAL MAINSAIL FURLER "RRGEEL" (A25)

In order to choose the electric motorization, you have to take some measures on the mast. You may use the "guiding" sheet below as a reference: it will help you finding the elements to be used in the choice of the various elements required for the installation.

The electric motorization replaces the existing manual mechanism and may be fitted on the manual systems made by Bamar, Z Spars and Selden (Furlex-Main).
 The kit to be fitted on an existing Bamar system is supplied with the external foil to support the motorization.
 For Z Spars and Furlex-Main we will use the external foil fitted on the mast, therefore we recommend you to take it off and send it to our premises to be modified.
 N.B.: check the vertical dimension of the mechanism, make sure the motorization may be located below the sail tack.
 Standard colour is silver anodizing.
 Boat's voltage: 12 or 24 V

Now you just have to place the order for the electric motorization to be adapted to your existing manual mainsail furler, the accessories needed to adapt it to the mast, if necessary, and the accessories for the electric plant:

Materials for the electric motorization:

Motorization RRGEEL	:code _____	q.ty _____
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Materials for the electric plant:

Through deck fitting (90° Ø 15 mm)	:code _____	q.ty _____
Electronic control "Boxtron" 6-60 A	:code _____	q.ty _____
Toggle switch	:code _____	q.ty _____
Watertight remote control with cable	:code _____	q.ty _____
Radio Kit (it includes 1 radio transmitter)	:code _____	q.ty _____
Radio transmitter for 1 motorization	:code _____	q.ty _____
Radio transmitter for 2 motorizations	:code _____	q.ty _____

INFORMATIVE SHEET FOR THE CHOICE OF A MANUAL IN-MAST MAINSAIL FURLER "RGIM" (A20)

In order to choose the manual mainsail furler, you have to take some measures on the mast. You may use the "guiding" sheet below as a reference: it will help you finding the elements to be used in the choice of the various elements required for the installation.

Mainsail luff length (P): _____ mm, mainsail base length (E): _____ mm

Mast shape and internal diameter

Make sure the diameter of the mechanism is smaller than the internal diameter of the mast.

N.B.: check the vertical dimension of the manual mechanism, make sure the coil drive can be located below the sail tack.

Make sure the outhaul line is long enough to roll in the Mainsail base "E"

Standard colour is silver anodizing.

Now you just have to place the order for the manual in-mast mainsail furler:

Materials for manual mainsail furler:

Mainsail furler RGIM :code _____ q.ty _____

INFORMATIVE SHEET FOR THE CHOICE OF ELECTRIC IN-MAST MAINSAIL FURLER "RGIEL" (A22)

In order to choose the electric mainsail furler, you have to take some measures on the mast and on the boat. You may use the "guiding" sheet below as a reference: it will help you finding the elements to be used in the choice of the various elements required for the installation.

Mainsail luff length (P): _____ mm, mainsail base length (E): _____ mm

Mast shape and internal diameter

Make sure the diameter of the mechanism is smaller than the internal diameter of the mast.

N.B.: check the vertical dimension of the electric motorization, make sure it can be located below the sail tack.

Standard colour is silver anodizing.

Boat's voltage: 12 or 24 V

Now you just have to place the order for the electric in-mast mainsail furler, and the accessories for the electric plant:

Materials for electric mainsail furler:

Mainsail furler RGIEL :code _____ q.ty _____

Materials for the electric plant:

Through deck fitting (90° Ø 15 mm) :code _____ q.ty _____

"Boxtron" electronic control 6-60 A :code _____ q.ty _____

Toggle switch :code _____ q.ty _____

Watertight remote control with cable :code _____ q.ty _____

Radio Kit (it includes 1 radio transmitter) :code _____ q.ty _____

Radio transmitter for 1 motorization :code _____ q.ty _____

Radio transmitter for 2 motorizations :code _____ q.ty _____

INFORMATIVE SHEET FOR THE CHOICE OF THE ELECTRIC MOTORIZATION FOR IN-MAST MAINSAIL FURLER "RRGIEL" (A35)

In order to choose the electric motorization, you have to take some measures on the mast and on the boat. You may use the "guiding" sheet below as a reference: it will help you finding the elements to be used in the choice of the various elements required for the installation.

The electric motorization replaces the existing manual mechanism and may be fitted on mast made by Bamar, Sparcraft, Z Spars, Selden, Hood and Nemo.

N.B.: check the vertical dimension of the mechanism, make sure the motorization may be located below the sail tack.

Standard colour is silver anodizing.

Boat's voltage: 12 or 24 V

Now you just have to place the order for the electric motorization to be adapted to your existing manual in-mast mainsail furler, the accessories needed to adapt it to the mast, if necessary, and the accessories for the electric plant:

Materials for the electric motorization:

Motorization RRGIEL :code _____ q.ty _____

Materials for the electric plant:

Through deck fitting (90° Ø 15 mm) :code _____ q.ty _____

Electronic control "Boxtron" 6-60 A :code _____ q.ty _____

Toggle switch :code _____ q.ty _____

Watertight remote control with cable :code _____ q.ty _____

Radio Kit (it includes 1 radio transmitter) :code _____ q.ty _____

Radio transmitter for 1 motorization :code _____ q.ty _____

Radio transmitter for 2 motorizations :code _____ q.ty _____

INFORMATIVE SHEET FOR THE CHOICE OF COMBINED ELECTRIC MAINSAIL MOTORIZATION AND OUTHAUL "RGEL" (A50) – TBEL (A51)

In order to choose the electric mainsail furler and outhaul, you have to take some measures on the mast and on the boat. You may use the "guiding" sheet below as a reference: it will help you finding the elements to be used in the choice of the various elements required for the installation.

The electric mainsail motorization and outhaul may be fitted either on new masts, on existing masts with integrated furling section, or on standard masts with a mainsail furling system fitted externally.

This kit may replace an existing manual mechanism and/or an existing motorization and may be fitted on mast made by Bamar, Sparcraft, Z Spars, Selden, Hood and Nemo.

The installation has to be carried out by highly specialized personnel.

N.B.: check the vertical dimension of the mainsail furler and outhaul mechanisms, make sure the motorizations may be located below the sail tack.

Standard colour is silver anodizing.

Boat's voltage: 12 or 24 V

Now you just have to place the order for the electric motorizations, the accessories needed to adapt them to the mast, and the accessories for the electric plant:

Materials for the electric motorizations:

Motorization RGEL (A50) :code _____ q.ty _____

Foil kit (if needed) (A65) :code _____ q.ty _____

Motorization TBEL (A51) :code _____ q.ty _____

Motor support panel (A70) :code _____ q.ty _____

Panel Support (A72) or (A74) :code _____ q.ty _____

Materials for the electric plant:

Through deck fitting (90° Ø 15 mm) 2 units :code _____ q.ty _____

Electronic control "Boxtron" 2 motors :code _____ q.ty _____

Toggle switch :code _____ q.ty _____

Watertight remote control with cable :code _____ q.ty _____

Radiocontrol :code _____ q.ty _____

Multifunction Panel :code _____ q.ty _____

INFORMATIVE SHEET FOR THE CHOICE OF COMBINED HYDRAULIC MAINSAIL MOTORIZATION AND OUTHAUL “RGI” (A6o) – TBI (A61)

In order to choose the hydraulic mainsail furler and outhaul, you have to take some measures on the mast and on the boat. You may use the “guiding” sheet below as a reference: it will help you finding the elements to be used in the choice of the various elements required for the installation.

The hydraulic mainsail motorization and outhaul may be fitted either on new masts, on existing masts with integrated furling section, or on standard masts with a mainsail furling system fitted externally.

This kit may replace an existing manual mechanism and/or an existing motorization and may be fitted on mast made by Bamar, Sparcraft, Z Spars, Selden, Hood and Nemo.

The installation has to be carried out by highly specialized personnel.

N.B.: check the vertical dimension of the mainsail furler and outhaul mechanisms, make sure the motorizations may be located below the sail tack.

Standard colour is silver anodizing.

Boat’s hydraulic power pack: Max pressure BAR _____; Max flow l/min _____; Voltage _____

Now you just have to place the order for the hydraulic motorizations, the accessories needed to adapt them to the mast, and the accessories for the hydraulic plant:

Materials for the hydraulic motorizations:

Motorization RGI (A6o)	:code _____	q.ty _____
Foil kit (if needed) (A65)	:code _____	q.ty _____
Motorization TBI (A61)	:code _____	q.ty _____
Motor support panel (A7o)	:code _____	q.ty _____
Panel Support (A72) or (A74)	:code _____	q.ty _____
Hydraulic hoses (kit) 1 for each motorization	:code _____	q.ty _____

Materials for the hydraulic plant:

Through deck fitting and s.s. quick fittings	:code _____	q.ty _____
Hydraulic hoses for the plant	:code _____	q.ty _____
Swage fittings	:code _____	q.ty _____
Multifunction control panel	:code _____	q.ty _____
Hydraulic power pack	:code _____	q.ty _____

INFORMATIVE SHEET FOR THE CHOICE OF A MANUAL FORESAIL FURLER (B1o)

In order to choose the manual foresail furler, you have to take some measures onboard. You may use the “guiding” sheet below as a reference: it will help you finding the elements to be used in the choice of the various elements required for the installation.

Type of stay and diameter, if (1x19) wire Ø _____ mm; if Dyform Ø _____ mm; if Rod # _____
 Make sure the stay terminal is detachable, otherwise make sure it may slide inside the furling foils .
 Pin-to-pin stay length.
 Chain-plate pin Ø _____ mm
 Three-dimensional dimensions of chainplate.

Now you just have to place the order for the manual foresail furler, the accessories needed to modify the stay, and the accessories needed to control the system from the cockpit:

Materials for manual foresail furler:

«Crociera» foresail furler GFM	:code _____	q.ty _____
Toggle	:code _____	q.ty _____
Special Clevis Pin	:code _____	q.ty _____

Materials to control the system from the cockpit:

Blocks and line kit	:code _____	q.ty _____
Fixed block (extra)	:code _____	q.ty _____
Swivel block (extra)	:code _____	q.ty _____
S.S. Prefeeder	:code _____	q.ty _____

INFORMATIVE SHEET FOR THE CHOICE OF AN ELECTRIC MOTORIZATION TO BE ADAPTED TO A MANUAL FORESAIL FURLER (B3o-31-32-33)

In order to choose the electric motorization to be adapted to the existing manual foresail furler, you have to take some measures on the furler. You may use the “guiding” sheet below as a reference: it will help you finding the elements to be used in the choice of the various elements required for the installation.

MANUAL FURLER INSTALLED ONBOARD

Brand _____, Model _____, Year of production _____ (if known); Foil dimensions _____x_____ mm, Foil abbreviation _____ (if known)
 Type of stay and diameter, if (1x19) wire Ø _____ mm; if Dyform Ø _____ mm; if Rod # _____
 Chain-plate pin Ø _____ mm, Three-dimensional dimensions of chainplate _____
 Pin between fork and turnbuckle Ø _____ mm (when the toggle fork is made by a bent plate)
 Boat’s voltage, 12 or 24 V

Now you just have to place the order for the electric motorization, the accessories needed to modify the stay, and for the electric plant:

Materials for the electric motorization:

Motorization RMEJ	:code _____	q.ty _____
Tack adapter	:code _____	q.ty _____
Standard or Long Sta-lok Terminal	:code _____	q.ty _____
Turnbuckle with fork terminal	:code _____	q.ty _____
Toggle or Rod Adapter	:code _____	q.ty _____
Special Clevis Pin	:code _____	q.ty _____

Materials for the electric plant:

Through deck fitting (straight or 90°)	:code _____	q.ty _____
Electronic control “Boxtron”	:code _____	q.ty _____
Toggle switch	:code _____	q.ty _____
Watertight remote control with cable	:code _____	q.ty _____
Radio Kit (it includes 1 radio transmitter)	:code _____	q.ty _____
Radio transmitter for 1 motorization	:code _____	q.ty _____
Radio transmitter for 2 motorizations	:code _____	q.ty _____

INFORMATIVE SHEET FOR THE CHOICE OF AN ELECTRIC FORESAIL FURLER (B20-21-22-23)

In order to choose the electric foresail furler, you have to take some measures onboard. You may use the “guiding” sheet below as a reference: it will help you finding the elements to be used in the choice of the various elements required for the installation.

Type of stay and diameter, if (1X19) wire Ø _____ mm; if Dyform Ø _____ mm; if Rod # _____
Make sure the stay terminal is detachable, otherwise make sure it may slide inside the furling foils .
Pin-to-pin stay length.
Chain-plate pin Ø _____ mm
Three-dimensional dimensions of chainplate
Boat's voltage, 12 or 24 V

Now you just have to place the order for the electric foresail furler, the accessories needed to modify the stay, and for the electric plant:

Materials for the electric furler:

Electric furler RMEJ	:code _____	q.ty _____
Toggle or Rod Adapter	:code _____	q.ty _____
Special Clevis Pin	:code _____	q.ty _____

Materials for the electric plant:

Through deck fitting (straight or 90°)	:code _____	q.ty _____
Electronic control “Boxtron”	:code _____	q.ty _____
Toggle switch	:code _____	q.ty _____
Watertight remote control with cable	:code _____	q.ty _____
Radio Kit (it includes 1 radio transmitter)	:code _____	q.ty _____
Radio transmitter for 1 motorization	:code _____	q.ty _____
Radio transmitter for 2 motorizations	:code _____	q.ty _____

INFORMATIVE SHEET FOR THE CHOICE OF AN HYDRAULIC FORESAIL FURLER (B50-51-52-53-54-55)

In order to choose the hydraulic foresail furler, you have to take some measures onboard. You may use the “guiding” sheet below as a reference: it will help you finding the elements to be used in the choice of the various elements required for the installation, and to check the compatibility of the boat's power pack.

Type of stay and diameter, if (1X19) wire Ø _____ mm; if Dyform Ø _____ mm; if Rod # _____
Make sure the stay terminal is detachable, otherwise make sure it may slide inside the furling foils .
Pin-to-pin stay length.
Chain-plate pin Ø _____ mm
Three-dimensional dimensions of chainplate
Boat's hydraulic power pack: Max pressure BAR _____; Max flow l/min _____; Voltage _____

Now you just have to place the order for the hydraulic foresail furler, the accessories needed to modify the stay, and for the hydraulic plant:

Materials for the hydraulic furler:

Hydraulic furler GFI	:code _____	q.ty _____
Threaded terminal	:code _____	q.ty _____
Hydraulic cylinder	:code _____	q.ty _____

Materials for the hydraulic plant:

Through deck fitting with quick release fittings	:code _____	q.ty _____
Hydraulic hose	:code _____	q.ty _____
Fittings	:code _____	q.ty _____
12 or 24 V Hydraulic power pack	:code _____	q.ty _____
Toggle switch	:code _____	q.ty _____

INFORMATIVE SHEET FOR THE CHOICE OF AN HALYARD SWIVEL REPLACING THE EXISTING ONE FITTED ON A FORESAIL FURLER (B80)

In order to choose the “openable” halyard swivel, you have to take some measures. You may use the “guiding” sheet below as a reference.

Type of furler installed: manual __, electric __, hydraulic __
Furler Brand _____, Model _____, Year of production _____ (if known);
Foil dimensions _____x_____ mm, Foil abbreviation _____(if known)
150% Foresail area _____ sq.m.
Foresail halyard working load _____, Foresail halyard breaking load _____
Type of boat _____, Boat yard _____, Year of production _____

Now you just have to place the order for the halyard swivel you have to supply the exact shape scale 1:1 of the foil:

Materials:

Halyard swivel	:code _____	q.ty _____
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INFORMATIVE SHEET FOR THE CHOICE OF FURLING FOILS REPLACING THE EXISTING ONES FITTED ON A FORESAIL FURLER (B82)

In order to choose the foils, you have to take some measures. You may use the “guiding” sheet below as a reference.

Type of furler installed: manual __, electric __, hydraulic __
Furler Brand _____, Model _____, Year of production _____ (if known);
Foil dimensions _____x_____ mm, Foil abbreviation _____(if known)
150% Foresail area _____ sq.m.
Type of boat _____, Boat yard _____, Year of production _____
Type of stay and diameter, if (1X19) wire Ø _____ mm; if Dyform Ø _____ mm; if Rod # _____

Make sure the stay terminal is detachable, otherwise make sure if may slide inside the new furling foils (should you wish to keep the original stay): these are binding elements in the choice of furling foils and connectors.

Total length of foils from the furler's body to the stay upper terminal.

To place the order for new foils you have to supply the information required:

Materials:

Terminal for terminal foil	:code _____	q.ty _____
Reinforcement connectors for terminal foil	:code _____	q.ty _____
Middle foil	:code _____	q.ty _____
Middle connectors	:code _____	q.ty _____
Hoisting foil with connector	:code _____	q.ty _____
Tack adapter between furler and Bamar foils	:code _____	q.ty _____

INFORMATIVE SHEET FOR THE CHOICE OF ROLLGEN (C1o)

In order to choose the correct ROLLGEN, you have to take some measures onboard. You may use the "guiding" sheet below as a reference.

Distance between padeye on deck and/or bowsprit, and exit of spinnaker halyard _____ m (L-RLG)
Distance between mast fore face and padeye on the bowsprit _____ m (TPS)
Boat length _____ m (LOA), Asymmetric Spinnaker area _____ sq.m.
Spinnaker halyard working load _____, Spinnaker Halyard breaking load _____

Now you just have to place the order for ROLLGEN and the accessories needed to control it from the cockpit:

Materials:

ROLLGEN :code _____ q.ty _____

Materials to control it from the cockpit:

Endless line :code _____ q.ty _____

Double block :code _____ q.ty _____

Openable block :code _____ q.ty _____

INFORMATIVE SHEET FOR THE CHOICE OF THE ELECTRIC FURLER FOR GENNAKERS "BWS" (C4o)

In order to choose the BWS, you have to take some measures onboard. You may use the "guiding" sheet below as a reference.

Boat length _____ m (LOA), Sail area _____ sq.m.
Genoa halyard working load _____, Genoa Halyard breaking load _____

Now you just have to place the order for the BWS and the accessories needed to control it from the cockpit:

Materials:

BWS :code _____ q.ty _____

Materials for the electric plant:

Electronic control "Boxtron" :code _____ q.ty _____

Toggle switch :code _____ q.ty _____

Watertight remote control with cable :code _____ q.ty _____

Radio Kit (it includes 1 radio transmitter) :code _____ q.ty _____

Radio transmitter for 1 motorization :code _____ q.ty _____

INFORMATIVE SHEET FOR THE CHOICE OF THE ELECTRIC WINCH MOTORIZATION MWE (D1o)

In order to choose the correct winch motorization, you have to take some measures onboard. You may use the "guiding" sheet below as a reference.

Brand of winch to be motorized _____, Voltage 12 or 24 V _____
Winch reduction ratio, it can be found near to the winch handle clutch _____
Boat length _____ m (LOA), Boat yard _____, Model _____, Production year _____
Deck thickness _____ mm
N.B.: the manual winch has to be sent to A.R.TE. srl Forlì - Italy in order to be motorized.

Now you just have to place the order for the Electric winch motorization and the electric accessories:

Materials:

MWE :code _____ q.ty _____

Axis extension (if needed) :code _____ q.ty _____

Electric plant materials for a 2-speed winch:

Thermal magnet :code _____ q.ty _____

Reversing solenoid :code _____ q.ty _____

Foot switch (n.2 units) :code _____ q.ty _____

Battery cut-out (if needed) :code _____ q.ty _____

Toggle switch (if needed) :code _____ q.ty _____

Electric plant materials for a 1-speed winch:

Thermal magnet :code _____ q.ty _____

Solenoid :code _____ q.ty _____

Foot switch (n.2 units) :code _____ q.ty _____

Battery cut-out (if needed) :code _____ q.ty _____

Toggle switch (if needed) :code _____ q.ty _____

INFORMATIVE SHEET FOR THE CHOICE OF THE HYDRAULIC WINCH MOTORIZATION MWHD (D2o)

In order to choose the correct winch motorization, you have to take some measures onboard. You may use the "guiding" sheet below as a reference.

Brand of winch to be motorized _____, Voltage 12 or 24 V _____
Boat's hydraulic power pack: Max pressure BAR _____, Max flow rate l/min _____
Winch reduction ratio, it can be found near to the winch handle clutch.
Boat length _____ m (LOA), Boat yard _____, Model _____, Production year _____
Deck thickness _____ mm
N.B.: the manual winch has to be sent to A.R.TE. srl Forlì - Italy in order to be motorized.

Now you just have to place the order for the Hydraulic winch motorization and the electric and hydraulic accessories:

Materials:

MWHD :code _____ q.ty _____

Axis extension (if needed) :code _____ q.ty _____

Materials for the hydraulic plant:

Throughdeck fitting with quick release fittings :code _____ q.ty _____

Hydraulic hose :code _____ q.ty _____

Fittings :code _____ q.ty _____

Hydraulic power pack :code _____ q.ty _____

Foot switch (n.2 units) :code _____ q.ty _____

Battery cut-out (if needed) :code _____ q.ty _____

Toggle switch (if needed) :code _____ q.ty _____

**INFORMATIVE SHEET FOR THE CHOICE OF THE HYDRAULIC PUMP BHP (E10)
ACCESSORIES AND HOSES FOR THE HYDRAULIC PLANT (E96)**

There are some aspects you have to take into consideration in order to choose the correct the BHP panel. You may use the “guiding” sheet below as a reference.

If the panel is to be used on racing boats, then we suggest the double speed version.
Should the reservoir be positioned below the pump level, we suggest using the “Racing kit”, in order to keep the oil level high.
The use of Bamar high-pressure hydraulic hose guarantees the plant.
Stainless steel J37° hydraulic fittings are compatible with the systems used by other suppliers.
“Elegant” and practical s.s. through-deck fitting. Wide range of s.s. fittings.
NOTE: please remember that each high-pressure hose has to be supplied with straight swage fittings with swivel head J37°.
NOTE: the s.s. through-deck fitting has to be connected both above and below deck with 2 further elbow and/or straight fittings depending on the room available and on the hose bendings.
NOTE: please use the hydraulic oil we recommend.

Now you just have to place the order for the manual pump and its accessories for the hydraulic plant:

Materials:

BHP :code _____ q.ty _____
_____ :code _____ q.ty _____

Materials for the hydraulic plant:

S.s.through-deck fitting :code _____ q.ty _____
Plastic through-deck fitting :code _____ q.ty _____
High pressure hydraulic hose :code _____ q.ty _____
Straight swage fittings :code _____ q.ty _____
Other accessories :code _____ q.ty _____
Other accessories :code _____ q.ty _____
Other accessories :code _____ q.ty _____

INFORMATIVE SHEET FOR THE CHOICE OF HYDRAULIC CYLINDERS (E20-21-22), BOOM VANGS (E19) AND ACCESSORIES (E90-92-93)

In order to choose the correct cylinders, you need to ask rigger and spar supplier for the relevant technical information. You may use the “guiding” sheet below as a reference.

HYDRAULIC BOOM VANG; you need to take into consideration the following factors: the position of connections on boom and mast, inclination and angle between these connections, boom length, boom weight or barycentre, if the mainsheet works on a track or on a fixed point.
CYLINDERS: we may supply different models and dimensions. Their pin diameter and thread are all compatible with other systems present on the market.
Now you just have to place the order for the cylinders and accessories you require:

Materials:

Hydraulic boom vang :code _____ q.ty _____

Materials:

Cylinder with stroke _____ :code _____ q.ty _____
Adjustable fixed fork :code _____ q.ty _____
Turnbuckle with fork terminal :code _____ q.ty _____
Toggle :code _____ q.ty _____

INFORMATIVE SHEET FOR THE CHOICE OF MECHANICAL HANDLE AND HANDWHEEL STAY ADJUSTERS (F10)

In order to choose the correct mechanical stay adjusters, you need to check some technical data onboard. You may use the “guiding” sheet below as a reference.

Stay adjuster pin and fork dimensions: make sure they are compatible with the chain-plates.
Should the “all open” measure not be long enough, you may use toggles and/or extensions. The toggle allows you to adjust the alignment between chain-plate and stay. It is essential when the chain-plate is transversal to the boat axis.
If you need to shorten the stay (e.g. when the stay adjuster replaces a turnbuckle), you will have to cut the stay to measure and use a swage or a Sta-lok eye terminal.

Now you just have to place the order for the stay adjusters and accessories you require:

Materials:

_____ stay adjuster :code _____ q.ty _____

Extra materials:

Toggle :code _____ q.ty _____
Sta-lok eye terminal :code _____ q.ty _____

INFORMATIVE SHEET FOR THE CHOICE OF A MECHANICAL KICKER WITH ADJUSTABLE SPRING (G10)

In order to choose the correct mechanical kicker, you need to take into consideration some factors. You may use the “guiding” sheet below as a reference.

Important factors: the position of connections on boom and mast, the inclination and the angle between these connections, boom length, boom weight or barycentre, if the mainsheet works on a track or on a fixed point.
Most times, the indications given in the catalogue are enough to help you choose the right mechanical kicker.
The kicker is supplied with a long line that may be used to control the kicker from the cockpit
Should you want to lock the line at mast foot, you may buy an “extra tackle with cleat”.
We may supply mast and boom fittings.
Kicker tubes are silver anodised and terminals are black hardcote anodised.

Now you just have to place the order for the kicker and accessories you require:

Materials:

Mechanical kicker :code _____ q.ty _____
Painting RAL 9010 (extra) :code _____ q.ty _____

Extra materials:

Extra tackle :code _____ q.ty _____
Underboom fitting :code _____ q.ty _____
Articulated mast fitting :code _____ q.ty _____

INFORMATIVE SHEET FOR THE CHOICE OF A FURLING AWNING (H10)

In order to choose the correct furling awning, you need to take into consideration some factors. You may use the “guiding” sheet below as a reference.

Bamar suggests using 2.5 m long awnings, because they may be easily stowed and used by a single person. The Arm Kit is an important element. The Arms allow you to use the awning both when you are sailing and when you are moored. The awnings are sold per unit, therefore if you want to install them on the boom, you have to order n. 2 units. Arm Kits are prepared for single awning. The standard colour of the mechanism is silver anodising.

Now you just have to place the order for the awnings and accessories you require:

Materials:

Furling awning :code _____ q.ty _____
 Painting RAL 9010 (extra) :code _____ q.ty _____
Extra materials:
 Arm and Tackle Kit :code _____ q.ty _____

INFORMATIVE SHEET FOR THE CHOICE OF A MINI (I01) OR STANDARD HYDRAULIC POWER PACK (I05)

In order to choose the correct hydraulic power pack, you need to take into consideration some factors. You may use the “guiding” sheet below as a reference.

The choice of the power pack depends on the Flow (quantity of oil in litres per minute) and the Pressure (expressed in Bars) needed for each mechanism.

If you have to control a cylinder that moves a locker, you will need only 1.5 l/min at 50 bars of pressure.

If you have to control a furler of medium dimensions, you will need 11 l/min at 140 bars of pressure.

If you have to control different functions, you have to bear in mind they will need different flow and pressure. Therefore, you will need a multifunction power-pack with integrated flow (oil speed) and pressure valves.

The power pack is modular. Putting one together is quite complex as it may serve different functions: foresail furler, mainsail furler, outhaul, cylinders, etc...

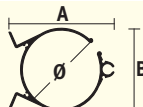
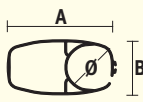
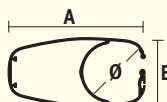







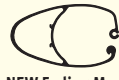
N.B.: knowing the boat's electric power supply is essential, as it binds the choice of the hydraulic power-pack.

NOTE: please use the recommended hydraulic oil.

Now you just have to place the order for the power-pack and accessories you require:

Materials:

Hydraulic power-pack :code _____ q.ty _____
 Throttler :code _____ q.ty _____
 Pressure valve :code _____ q.ty _____
 Winch second speed manostat :code _____ q.ty _____

																																																																																						
<p>Bamar External Mainsail furler</p> <table border="1"> <thead> <tr> <th>Foil type</th> <th>A</th> <th>B</th> <th>Ø</th> </tr> <tr> <td></td> <td>mm</td> <td>mm</td> <td>mm</td> </tr> </thead> <tbody> <tr><td>BA 70</td><td>110</td><td>75</td><td>70</td></tr> <tr><td>BA 80</td><td>115</td><td>85</td><td>80</td></tr> <tr><td>C</td><td>124</td><td>95</td><td>90</td></tr> <tr><td>D</td><td>142</td><td>110</td><td>105</td></tr> <tr><td>E</td><td>176</td><td>156</td><td>150</td></tr> </tbody> </table>	Foil type	A	B	Ø		mm	mm	mm	BA 70	110	75	70	BA 80	115	85	80	C	124	95	90	D	142	110	105	E	176	156	150	<p>Bamar Furling Mast</p> <table border="1"> <thead> <tr> <th>Foil type</th> <th>A</th> <th>B</th> <th>Ø</th> </tr> <tr> <td></td> <td>mm</td> <td>mm</td> <td>mm</td> </tr> </thead> <tbody> <tr><td>BMR 70</td><td>215</td><td>120</td><td>95</td></tr> <tr><td>BMR 100</td><td>245</td><td>136</td><td>114</td></tr> <tr><td>BMR 125</td><td>261</td><td>144</td><td>117</td></tr> <tr><td>BMR 140</td><td>305</td><td>160</td><td>126</td></tr> <tr><td>BMR 165</td><td>340</td><td>180</td><td>150</td></tr> </tbody> </table>	Foil type	A	B	Ø		mm	mm	mm	BMR 70	215	120	95	BMR 100	245	136	114	BMR 125	261	144	117	BMR 140	305	160	126	BMR 165	340	180	150	<p>Sparcraft Furling Mast</p> <table border="1"> <thead> <tr> <th>Foil type</th> <th>A</th> <th>B</th> <th>Ø</th> </tr> <tr> <td></td> <td>mm</td> <td>mm</td> <td>mm</td> </tr> </thead> <tbody> <tr><td>F 560 E</td><td>220</td><td>118</td><td>100</td></tr> <tr><td>F 760 E</td><td>253</td><td>128</td><td>115</td></tr> <tr><td>F 980 E</td><td>277</td><td>140</td><td>115</td></tr> <tr><td>F 1410 E</td><td>305</td><td>157</td><td>140</td></tr> <tr><td>F 1980 E</td><td>335</td><td>171</td><td>150</td></tr> </tbody> </table>	Foil type	A	B	Ø		mm	mm	mm	F 560 E	220	118	100	F 760 E	253	128	115	F 980 E	277	140	115	F 1410 E	305	157	140	F 1980 E	335	171	150
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DIMENSIONAL TABLE OF FURLING MAST FOILS AND EXTERNAL SYSTEMS

Indicative measures; please, let us have the measures taken on the mast when placing the order.

Service points on the Italian Territory

LEGENDA:

- = installation of manual systems
- = installation of manual and electrical systems
- = installation of manual, electric and hydraulic systems

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MARLINE snc

- Mr. D. & F. Parodi
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Tel. e Fax 0185 323706
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FINALE LIGURE (SAVONA)

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Fax 1782280997
Mailto: boragno@libero.it
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FIRENZE

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GARDA (VERONA)

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GRADO (UDINE)

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