bamar®
Furling & Reefing Sail Systems

1050662

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ARTE®
Advanced Research and Technology srl

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CONSORZIO EXPORT NAUTICO MEMBER

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ARTE®
Advanced Research and Technology srl

bamar®
Furling & Reefing Sail Systems

n. 10 Integration

- Furling & Reefing Sail Systems
- Hydraulic Systems
- Sailing Hardware

GENERAL INDEX

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This symbol represents our new line of products characterized by the spherical self-aligning anchoring system.
You will find such symbol reproduced on the upper external corner of the pages in which such products are presented and described.

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.

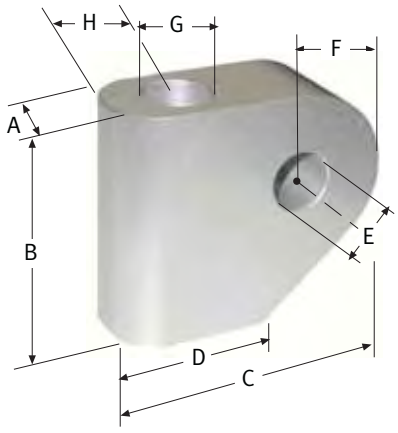
Long inactivity:

- 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.

s/y "Fetch" Trip 80' - De Cesari/Soleri shipyard - Courtesy by Banks Sails

(A14) "BOOM TOGGLE" MAINSAIL FURLERS ACCESSORIES

When placing an order for a manual or motorized vertical external mainsail furler, you have to check onboard the dimensions of the original boom toggle. Should these not be compatible with the gooseneck supplied in the kit, we may supply an anodised aluminium toggle in order to replace the existing one.



RGE	BA70 - 80	"C" - "D"
Code	901011602	901011601
A (mm)	19	30
B (mm)	54	66
C (mm)	58	75
D (mm)	35	40
E (mm)	125	16,5
F (mm)	15	25
G (mm)	12,5	18,5
H (mm)	12	20

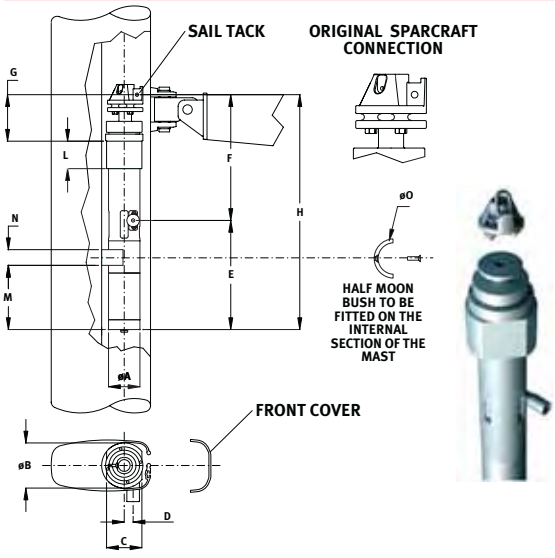
(A35) ELECTRIC MOTORIZATION FOR IN-MAST MAINSAIL FURLERS OF DIFFERENT BRANDS, "RRGIEL"

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 motorized.

The kit includes:
- electric motorization
- anti-rotation bush
- threaded flange
- inner foil adapter
- front cover (depending on models)

A line of motorizations customized for Sparcraft Grand Prix masts now completes the series.

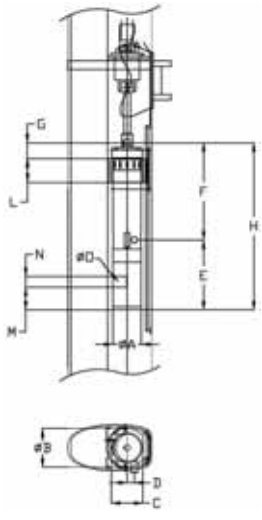
In the table below you will find the codes needed to place the order:



MAST SECTION	VOLT	RRGIEL 80	RRGIEL 110	RRGIEL 130
SPARCRAFT F 560E	12 V 24 V	101540060011 101540060012		
SPARCRAFT F 760E	12 V 24 V	101540080011 101540080012		
SPARCRAFT F 980E	12 V 24 V	101540100011 101540100012	101543100011 101543100012	
SPARCRAFT F1410E	12 V 24 V		101543120011 101543120012	
SPARCRAFT F1980E	12 V 24 V		101543140011 101543140012	101538140011 101538140012
SPARCRAFT F2600E	12 V 24 V			101543160011 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*

Grand Prix Line



MAST SECTION	VOLT	RRGIEL 130	RRGIEL 160
SPARCRAFT 15083	24 V	101329170022	
SPARCRAFT 17883	24 V	101329180022	
SPARCRAFT 22012	24 V	101329190022	101330200022
SPARCRAFT 24311	24 V		101330210022
SPARCRAFT 26711	24 V		101330220022
ø A (mm)		130	160
* ø B MIN (mm)		170/140**	200/170**
C (mm)		140	170
D (mm)		33	33
E (mm)		330	355
F (mm)		450	520
G (mm)		84	*
H (mm)		780	875
L (mm)		110	130
M (mm)		220	200
N (mm)		50	50
ø O (mm)		= ø B	= ø B
MOTORIZATION (Kg)		35	55

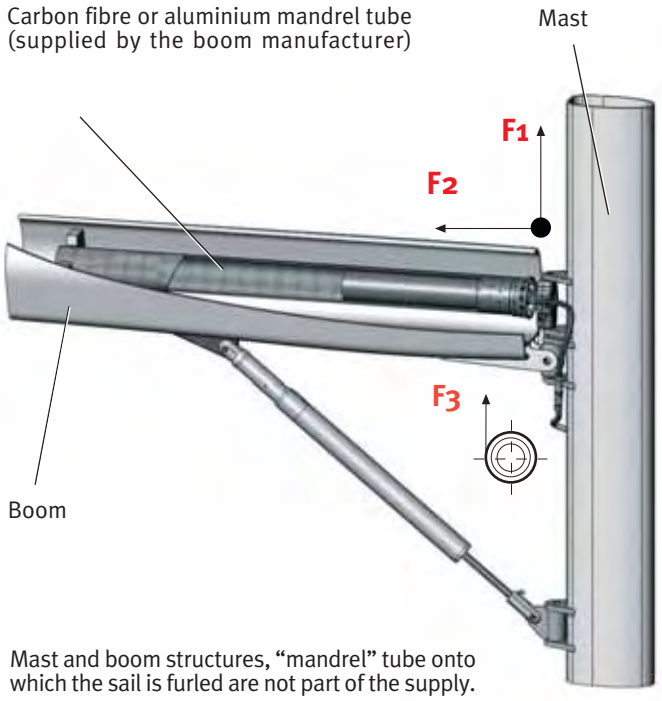
** TO BE CUSTOMIZED* *** IF FITTED ON FRONT COVER*

(A 80) ELECTRIC MOTORIZATION FOR FURLING BOOMS "BFBME"

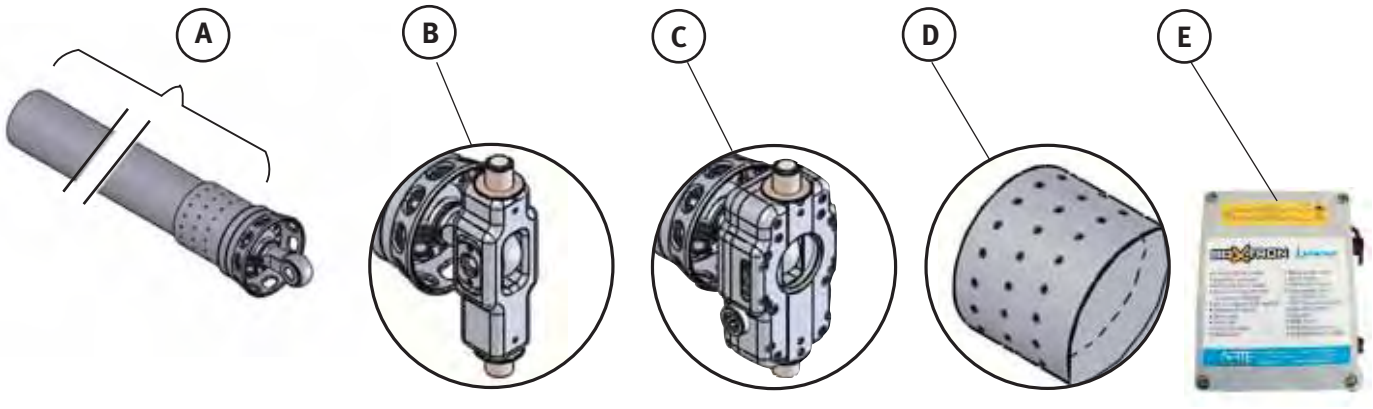
New line of electric motorizations for furling booms available for sailing yachts with indicative boom length from 5 to 16 metres.
The innovative system is made up by a reduction gear, an electric motor and its brake, integrated and protected inside an aluminium cylindrical structure designed to be housed inside the mainsail furling mandrel.
The motorization is supplied with slots where the mainsail tack is to be tied on.
The standard motorization **A** may be equipped with either a simple boom toggle **B**, or alternatively, with the special boom toggle **C** that integrates the manual emergency clutch. N.B.: both toggles are optional and are to be requested when placing the order.

Being compact, light in weight, easy to install and thanks to its position mast-side of the boom, our electric motorization represents a unique solution in its field.
Moreover, among the systems on the market, the Bamar furler is the one that allows for the minimum distance between the aft-face of the mast and the sail tack. This makes the sail opening and closing easier.

The system is managed by "Boxtron" Tele, the electronic control of the working load. Furthermore, it is important to highlight that both furling and unfurling operations are electrically controlled.



Mast and boom structures, "mandrel" tube onto which the sail is furled are not part of the supply.



TECHNICAL CHARACTERISTICS

Mandrel External Ø mm	*F1 Vertical Pull Max WL Ton	*F2 Horizontal Pull Max WL Ton	**F3 Reefed sail vertical max WL Ton	Volt	Motor Power (W)	Max Speed (RPM)	Max Boom Length (m)	Weight (kg)
110	**1**	0,6	0,6	12	150	15	6	14,5
110	**1**	0,6	0,6	24	150	15	6	14,5
140	**2,5**	1,5 - 2	1,5 - 1,7	12	400	15	8	29
140	**2,5**	1,5 - 2	1,5 - 1,7	24	400	15	8	29
182	**5**	3 - 3,5	3	24	1500	15	12	43
270	**10**	-	-	-	-	-	16	-

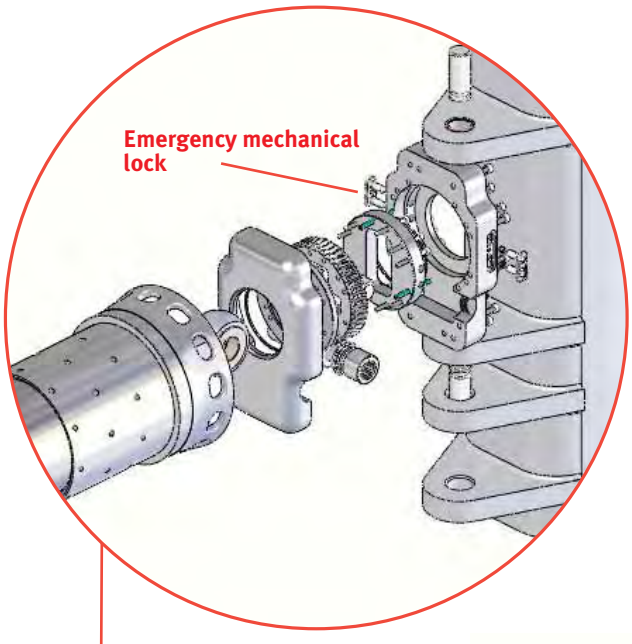
** with sail fully open*

*** calculated on an intermediate Ø of 160 mm on mandrel Ø 110*
180 mm on mandrel Ø 140
220 mm on mandrel Ø 182

HOW TO PLACE THE ORDER

	A	B	C	D	E	
Mandrel External Ø mm	BFBME Motorization	Simple Boom Toggle	Boom Toggle With Manual Emergency Clutch	Mandrel drilling Template	Boxtron Tele	Boom Toggle Extension Flange
110	**122110000100**	301500201	301500202	301500204	903650120	301500203
110	**122120000100**					
140	**122110000250**	301500401	301500402	301500404	903650120	301500403
140	**122120000250**					
182	**122120000500**	301500601	301500602	301500604	903650201	301500603
270	**122120001000**	-	-	-	-	-

Detail / exploded view showing how the motorization is fitted onto the boom toggle with manual emergency clutch.



HOW TO USE THE MANUAL EMERGENCY CLUTCH

If the motorization stops rotating, there may be a series of causes:

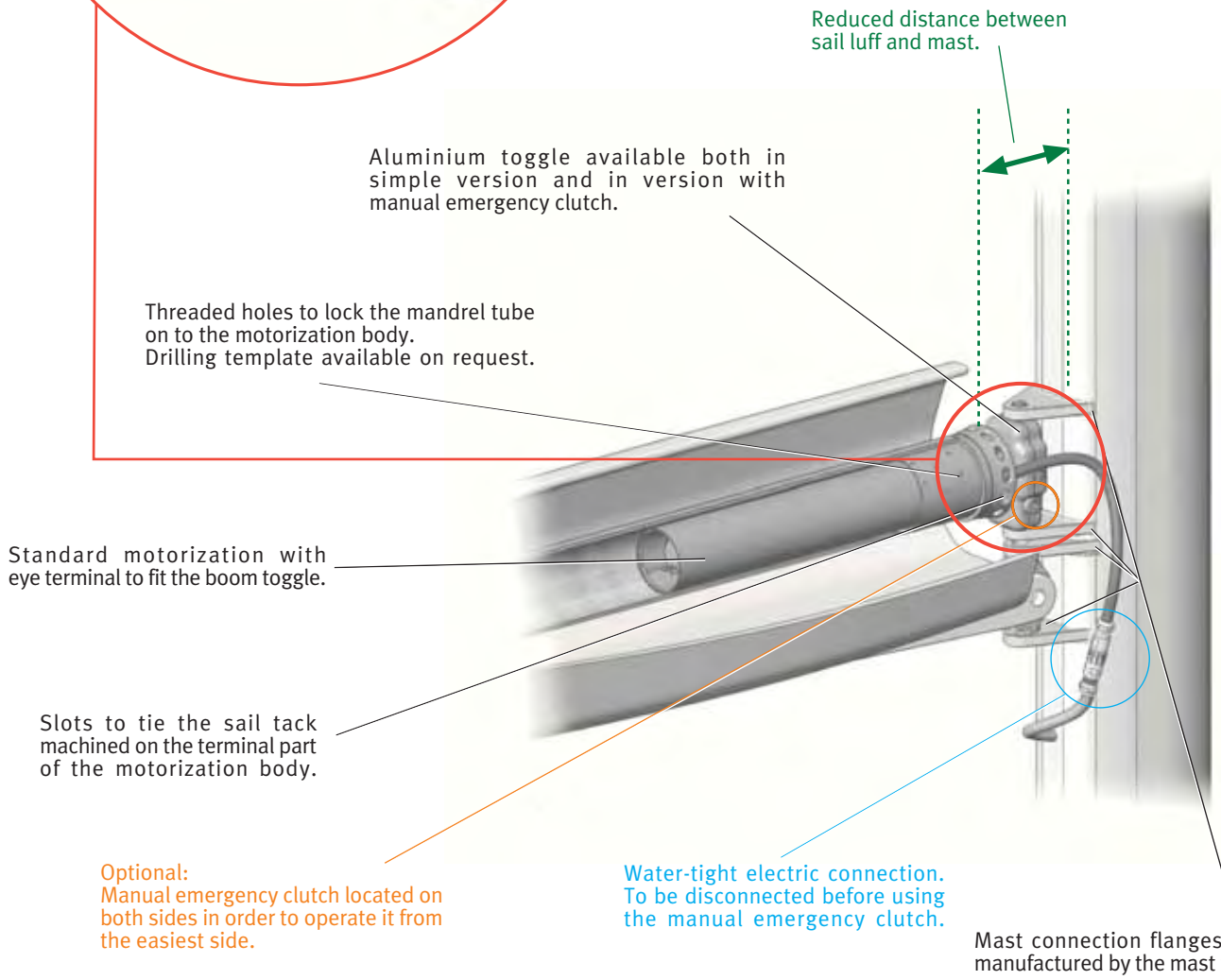
-Accidental interruption of the electric supply to the motor
-Accidental interruption of the electric supply to the brake
-Electric voltage drop (+ or – 10% on electric supply voltage)
-Damage to the reduction gear

If you have bought the toggle with emergency clutch, then you may operate the system manually in order to furl/unfurl the sail as follows:
-Disconnect the electric cable
-Take off the safety locks fitted on both sides of the toggle (such locks represent a safety system for inactivity periods).
-Insert the handle and rotate

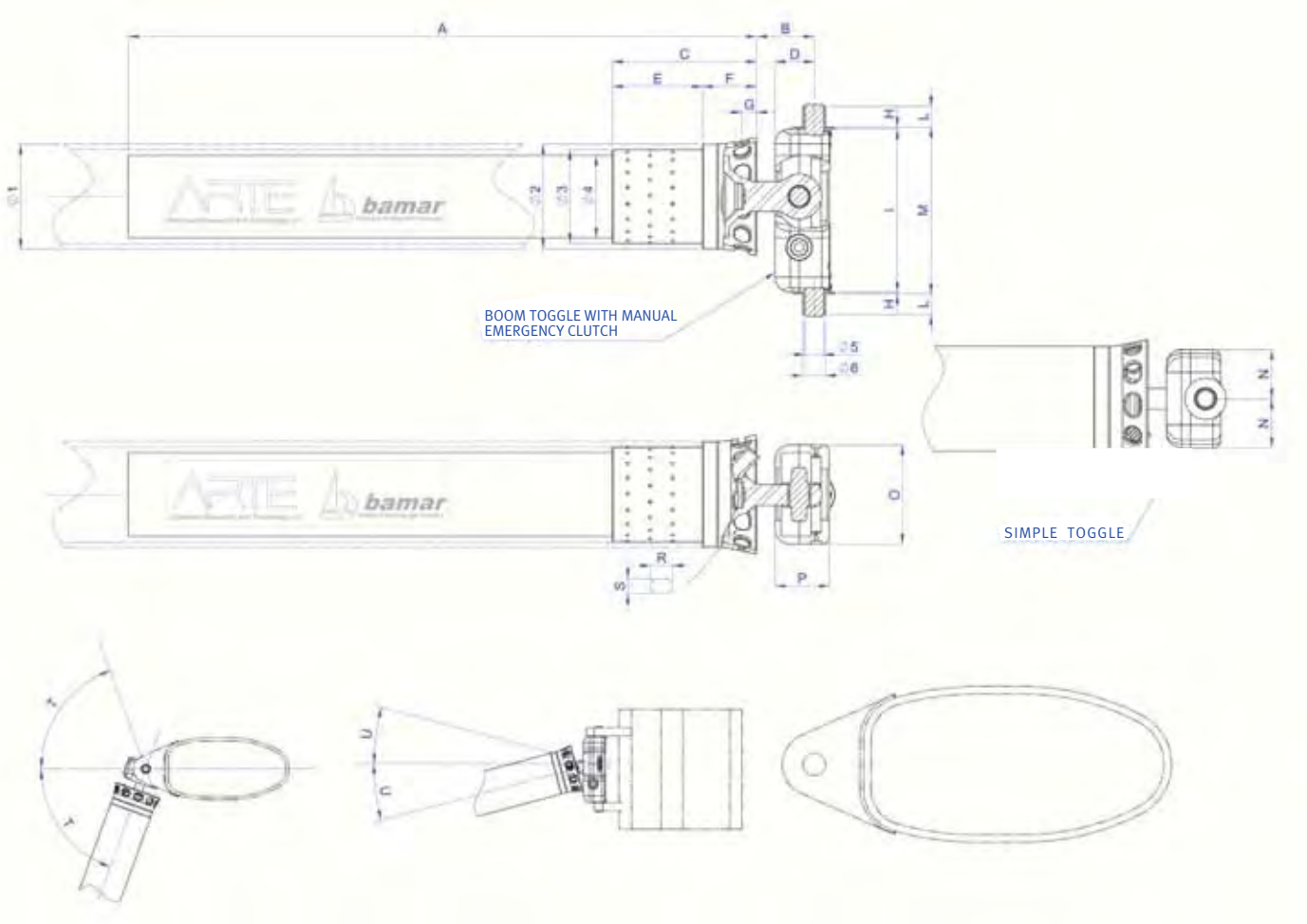
The toggle integrates a reduction gear with endless screw. This element has a reduction ratio that prevents the mandrel from idling, as it blocks any accidental rotation when operating the system manually.

When driving the device manually, every handle revolution corresponds to a number of linear sail metres that may be furled/unfurled, calculated on a Ø of:

160 mm on BFBM 110 mandrel = 0,5 metres
180 mm on BFBM 140 mandrel = 0,6 metres
220 mm on BFBM 182 mandrel = 0,7 metres



The mast, boom, and mandrel tube upon which the sail is furled are not part of the supply.



DIMENSIONS

Mandrel Øe	*WL*	*Ø1*	*Ø2*	*Ø3*	*Ø4*	*Ø5*	*Ø6*	*A*	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*I*	*L*	*M*	*N*	*O*	*P*	*Q*	*S*	*T*	*U*
mm	*ton*	*mm*	*mm*	*mm*	*mm*	*mm*	*mm*	*mm*	*mm*	*mm*	*mm*	*mm*	*mm*	*mm*	*mm*	*mm*	*mm*	*mm*	*mm*	*mm*	*mm*	*mm*	*mm*	*USE MAX*	*USE MAX*
110	1	110	110	100	85	25	30	752	72	197	49	127	70	20	2	208	30	212	61	121	69	30	20	70° - 75°	70° - 75°
140	2,5	140	140	125	110	25	30	837	76	192	52	120	72	20	2	218	30	222	66	131	72	30	20	70° - 75°	70° - 75°
182	5	182	182	164	140	25	30	905	92	243	55	162	81	20	2	233	193	237	73	145	75	30	20	70° - 75°	70° - 75°
270	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

(B25-B26) ELECTRIC "FLUSH-DECK" FORESAIL FURLER WITH SPHERICAL FULCRUM "MEJS1.02 - MEJS2.02"

Bamar electric flush-deck foresail furling and reefing system with spherical fulcrum is available in two models: MEJS1.02 (for stays with diameter from 8 to 14 mm) and MEJS2.02 (for stays with diameter from 14 to 19 mm).
The motorization is supplied with aluminium furling foils and halyard swivel.

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 MEJS is made of "HARDCOTE" anodised aluminium. Stainless steel parts are insulated with nylon spacers.

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.

TACK ADAPTER
Connection between torque tube and foils.

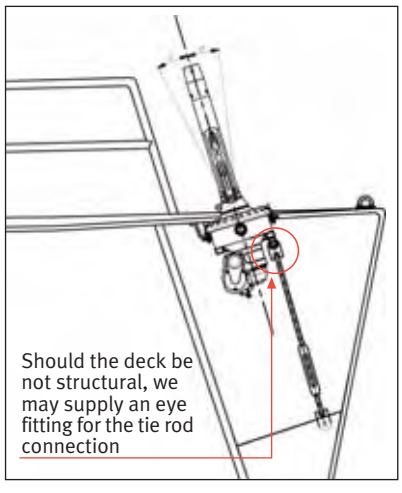
TORQUE TUBE
If you unscrew the locking screws, the torque tube will slide on the foil and show the manual turnbuckle.

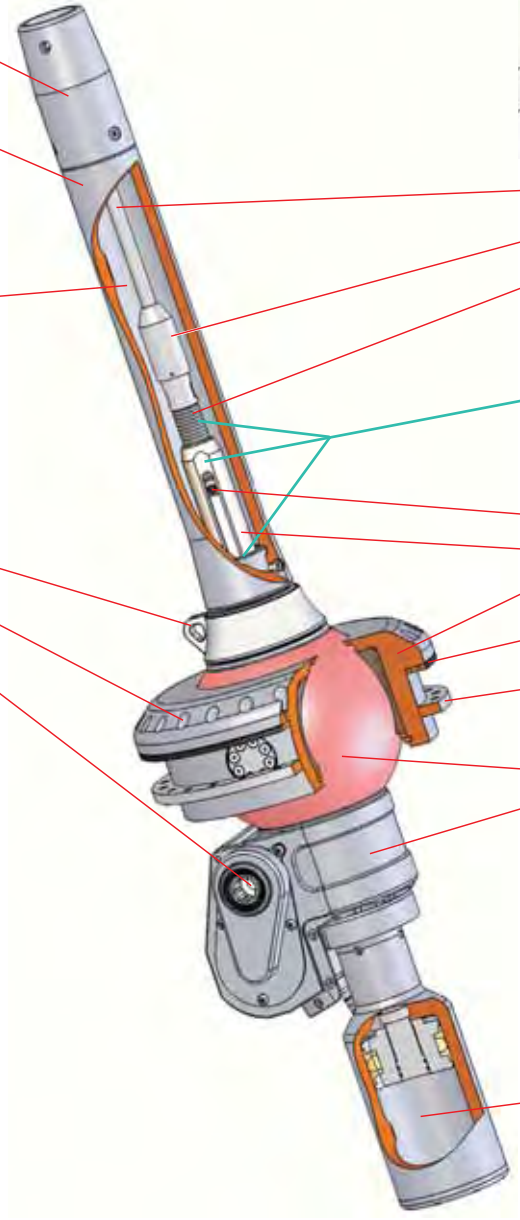
USE OF WIRE OR ROD STAY
The furler kit is not supplied with inner stay. This has to be ordered separately from the spar maker or rigger.
The motorization is fitted with an inner turnbuckle for the manual adjustment of the stay. Therefore, when placing the order, you have to specify the kind of threaded stud (optional) you need to connect the system to the stay.

SAIL TACK

SCREWS FOR DECK ANCHORING

SAFETY
Should there be a failure in the electric plant, you may control the furler manually by inserting in the emergency clutch either an electric drill adapter or an emergency crank wheel operated by an endless line.





WIRE OR ROD STAY

ROD ADAPTER

UPPER THREADED STUD
For wire, swage or "Sta-lok" mechanical versions; for Rod, threaded stud for adapter.

MANUAL TURNBUCKLE
Standard stroke 200 mm

TURNBUCKLE ANTI-ROTATION GRUB SCREWS

TURNBUCKLE BODY

DECK FITTING FLANGE

DELRIN INSULATING FLANGE

S.S. BELOW DECK FLANGE

SELF-ALIGNING SPHERICAL CONNECTION

MEJS 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 anticlockwise.

HYDRAULIC CYLINDER
Bamar MEJS furlers may be supplied with an integrated cylinder which allows for the stay tensioning. Every model may be supplied in either the standard version or with integrated stay tensioning cylinder.

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 Delrin half bearings (please refer to section "Foil with expanding openable connector" on page 61-62 of Catalogue n.10 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 (OPTIONAL)
It grants the correct functioning and control of the halyard on top of the mast (please refer to page 38 of Catalogue n.10)

MATERIALS
Most components are machined from aluminium type 6061-T6, protected by hard-cote anodising, and some parts are made of stainless steel.
In order to get the best mechanical resistance of materials, we use extruded aluminium and machine it 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 **MEJS 1** uses about the same amount of power as a 25W bulb lit for half an hour.

MAINTENANCE
It just needs to be rinsed with fresh water.

The electric foresail furler "MEJS" 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
- grease tube
- sealing liquid
- allen key

HOW TO PLACE AN ORDER
1. determine the model depending on the stay diameter and length, foresail area, boat length, voltage.

2. choose the kind of electric plant you want to install (please refer to (B40) MAIN ACCESSORIES FOR ELECTRIC PLANT on page 46 of Catalogue n.10)

3. **choose the accessories needed to connect to the stay:**
the furler kit is not supplied with inner stay. This has to be ordered separately from the spar maker or rigger.
The motorization is fitted with an inner turnbuckle for the manual adjustment of the stay. Therefore, when placing the order, you have to specify the kind of threaded stud (optional) you need to connect the system to the stay.
It is possible to order the upper threaded stud for 1x19 wire, swage or Sta-Lok mechanical versions, or the version for Rod with the upper side to be threaded depending on the adapter's characteristics, and it should be ordered the threaded stud stating the Rod brand, modifying the code as stated hereafter:

Code variable	Bamar=03	Navtec=04	OYS=05	BSI=06	BW=07

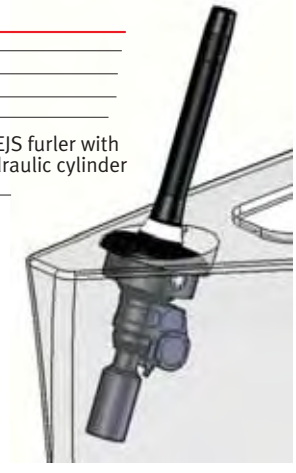
Example: Semi manufactured Rod code 904300057 SEMI MANUFACTURED THREADED STUD MEJS 1.02 – 22
Navtec Rod code 904300457 NAVTEC THREADED STUD MEJS 1.02 – 22

B20 MEJS1.02

VOLTAGE	12V					24V				
FOIL SECTION	BMG40R	BMG50R		BMG52		BMG40R		BMG50R	BMG52	
(1X19) WIRE STAY DIAMETER mm	10	12	14	14		10	12	14	14	
ROD #	-17	-22	-30	-40	-48	-17	-22	-30	-40	-48
LENGTH m										
13.5	110111101508					110211101508				
15.0	110111101509					110211101509				
16.5	110111101510	110111122510				110211101510	110211122510			
18.0	110111101511	110111122511	110111142511			110211101511	110211122511	110211142511		
19.5		110111122512	110111142512	110111142612			110211122512	110211142512	110211142612	
21.0		110111122513	110111142513	110111142613			110211122513	110211142513	110211142613	
22.5			110111142514	110111142614				110211142514	110211142614	
24.0				110111142615	110111602615				110211142615	110211602615
25.5				110111142616	110111602616				110211142616	110211602616
27.0					110111602617					110211602617
Threaded stud										
STALOK	904300210	904300212	904300214	904300214		904300210	904300212	904300214	904300214	
Semi manufactured ROD	904300056	904300057	904300058	904300059	904300060	904300056	904300057	904300058	904300059	904300060

B21 MEJS2.02

VOLTAGE	24V				
FOIL SECTION	BMG52	BMG60			BMG70
(1X19) WIRE STAY DIAMETER mm	14	16		19	19
ROD #	-40	-48	-53	-60	-60
LENGTH m					
19.5	110216142612				
21.0	110216142613				
22.5	110216142614				
24.0	110216142615	110216163015			
25.5		110216163016	110216193016	110216193016	
27.0		110216163017	110216193017	110216193017	110216193517
28.5		110216163018	110216193018	110216193018	110216193518
30.0			110216193019	110216193019	110216193519
31.5					110216193520
33.0					110216193521
Threaded stud					
STALOK	904320214	904320216		904320219	904320219
Semi manufactured ROD	904320059	904320060	904320073	904320061	904320061


MEJS furler with hydraulic cylinder

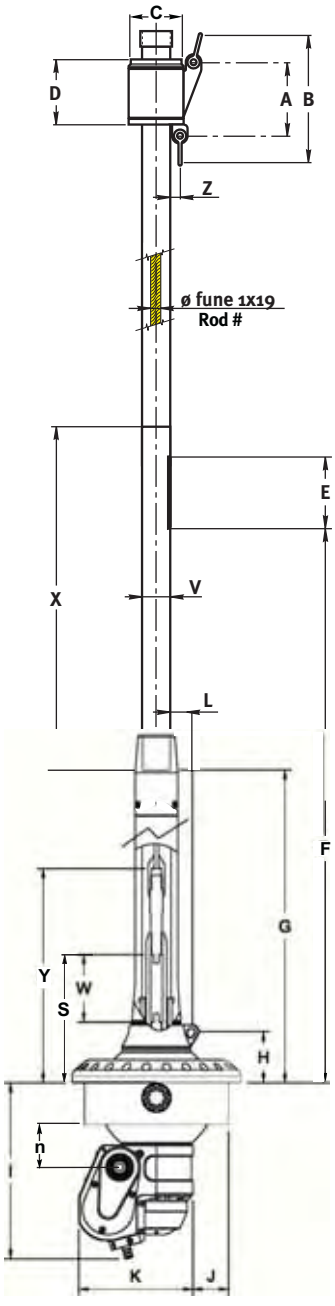
The furlers codes shown on the table identify the standard version with internal manual turnbuckle with 200 mm stroke

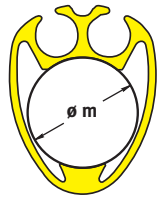
B29 HYDRAULIC CYLINDER FOR MEJS 1.02 - 2.02

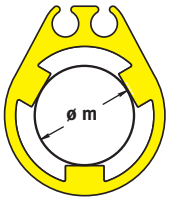
Model	Code	Stroke (mm)
MEJS 1.02	901102715	100
MEJS 2.02	901102716	100

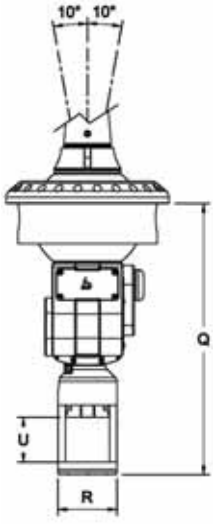
The basic electric furler is complete with a manual turnbuckle. As option, we supply an hydraulic cylinder to be integrated in the motorization.

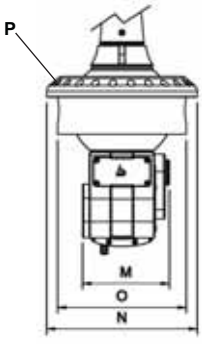
Technical Data











	MEJS 1.02					MEJS 2.02		
ROD# (*)	-17	-22	-30	-40	-48	-40	-48	-60
1x19 wire Ø (**)	10	12	14	14	-	14	16	19
Max sail (150%) sq.m.	70	80	90	100	120	120	140	160
LOA max m	12	14	15	16.5	19,5	18	20	22
øm mm	23	30	30	29	29	29	30	40
A	110	115	115	115	170	171.5	191.5	230.5
B	185	190	190	190	300	250	280	320
ø C	80	90	90	90	104	104	118	142
D	93	100	100	100	145	145	165	197
E	180	180	180	110	110	110	110	110
F	1080	1080	1080	1180	1180	1180	1380	1480
G	575	575	575	575	575	639	639	639
H	93	93	93	93	93	129,5	129,5	129,5
I	305	305	305	305	305	355	355	355
J	61	61	61	61	61	70	70	70
K	200	200	200	200	200	282	282	282
L	47	42	42	40	40	53.5	50	45
M	125	125	125	125	125	165	165	165
ø N	289	289	289	289	289	370	370	370
ø O	247	247	247	247	247	305	305	305
P	M8	M8	M8	M8	M8	M10	M10	M10
Q	485.5	485.5	485.5	485.5	485.5	499	499	499
ø R	105	105	105	105	105	155	155	155
S	320	320	320	320	320	360	360	360
U	100	100	100	100	100	100	100	100
V	40	50	50	52	52	52	60	70
W (turnbuckle stroke)	200	200	200	200	200	200	200	200
X	750	750	750	750	1500	1500	1500	1500
Y	534	534	534	534	534	598	598	598
Z	30	25	25	25	20	14	15	18
(minimum)	50	50	50	50	50	75	75	75
Cylinder kg	5	5	5	5	5	8	8	8
Swivel kg	0.60	0.98	0.98	1.0	2.0	2.0	2.7	5.2
Foil kg/m	0.92	1.32	1.32	1.77	1.77	1.77	2.44	2.77
Motorization kg	30	30	30	30	30	58	58	58
Foil	BMG40R	BMG50R	BMG50R	BMG52	BMG52	BMG52	BMG60	BMG70

NOTE: where not stated the dimensions are in millimeters

NOTE: the upper threaded stud, in presence of a 1x19 wire, it is supplied exclusively in STALOK mechanical version

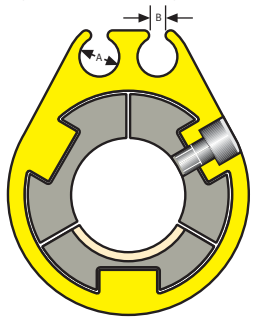
NOTE: for ROD it should be defined the brand of ROD Connector - Adapter

Motorization technical characteristics		MEJS 1.02	MEJS 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 upper eye terminal may be disassembled in order to have the stay pass through the foils (see Ø m)

** if the lower stay terminal is supplied with a swage threaded stud, 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 foil inner diameter. In such case, you will have to replace the terminal with a Sta-lok type of terminal. (please refer to page 48 of Catalogue n.10)

Foil and splice piece section



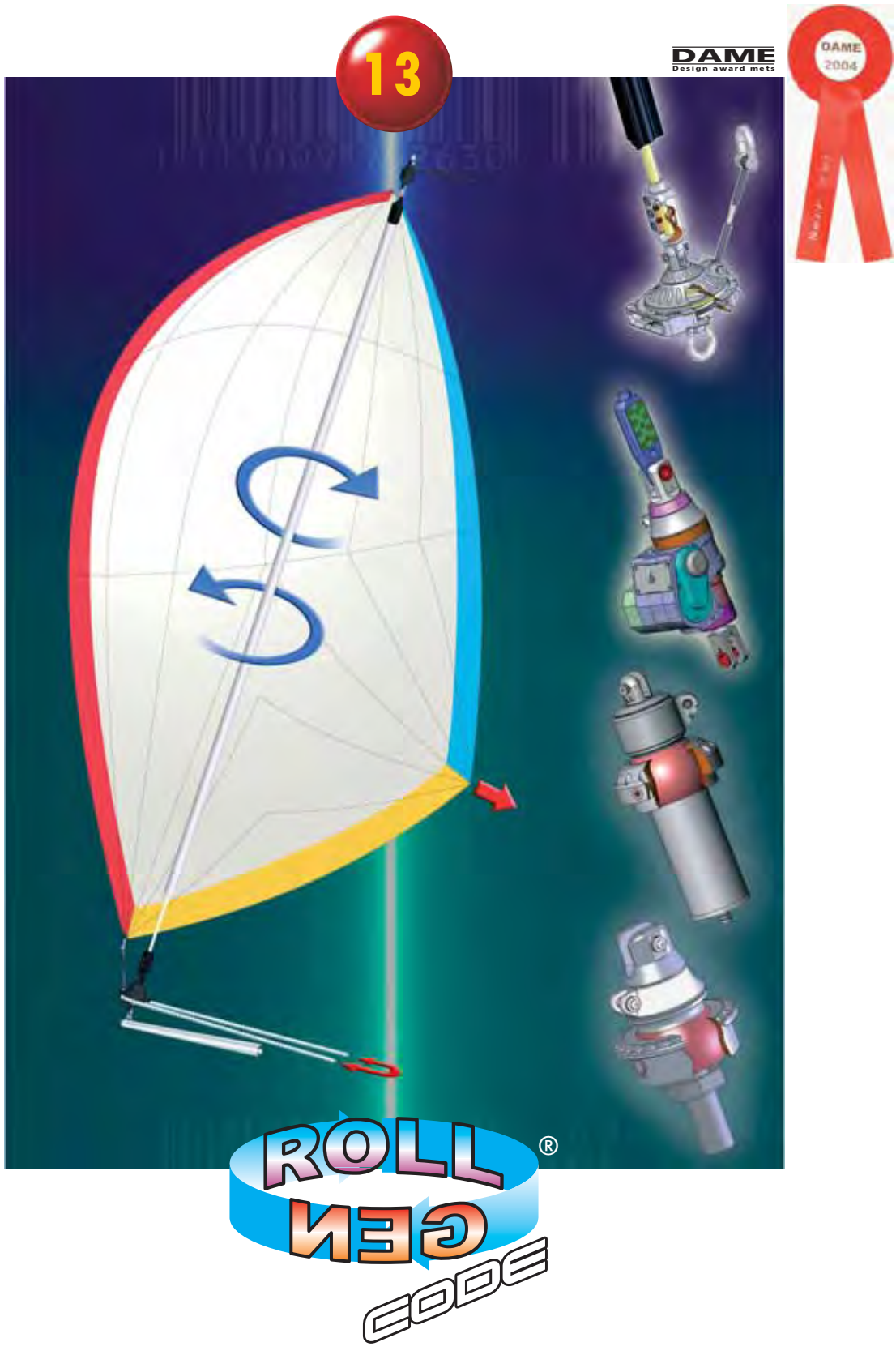
BMG 40R			BMG 50R			BMG 52			BMG 60			BMG 70		
section	mm	40x32	section	mm	50x38	section	mm	43x52	section	mm	50x60	section	mm	60x70
sail groove	mm	ø 9	sail groove	mm	ø 9	sail groove	mm	ø 6	sail groove	mm	ø 8	sail groove	mm	ø 8
gap (B)	mm	3.5	gap	mm	3.5	gap	mm	3	gap	mm	3.5	gap	mm	3.5

RLG-CODE 20 on s/y 49'

Andrea Mura and Guido Maisto on ADRIA SAIL 49' tested on race, with reduced crew, the RLG-CODE 20 equipped with two interchangeable stays, one installed on mast head and the other installed on a lower position.

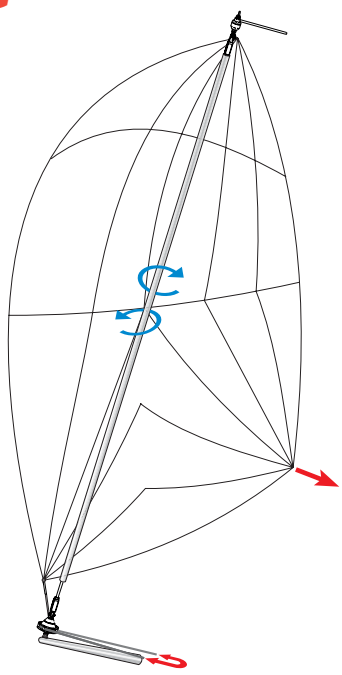
Winner of the 2006 edition: *ROMA for 2*
CORSICA for 2

Courtesy by: www.ventodisardegna.it



The revolutionary system allowing to furl free flying sails has undergone a further evolution.
It is now available in two different configurations:
- RollGen (RLG), to furl free flying asymmetric sails
- Code, to furl sails with stay integrated in the luff
We offer it both in the manual and motorized (electric and hydraulic) version

FURLER FOR ASYMMETRIC SAILS ROLLGEN = "RLG"



- 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

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.

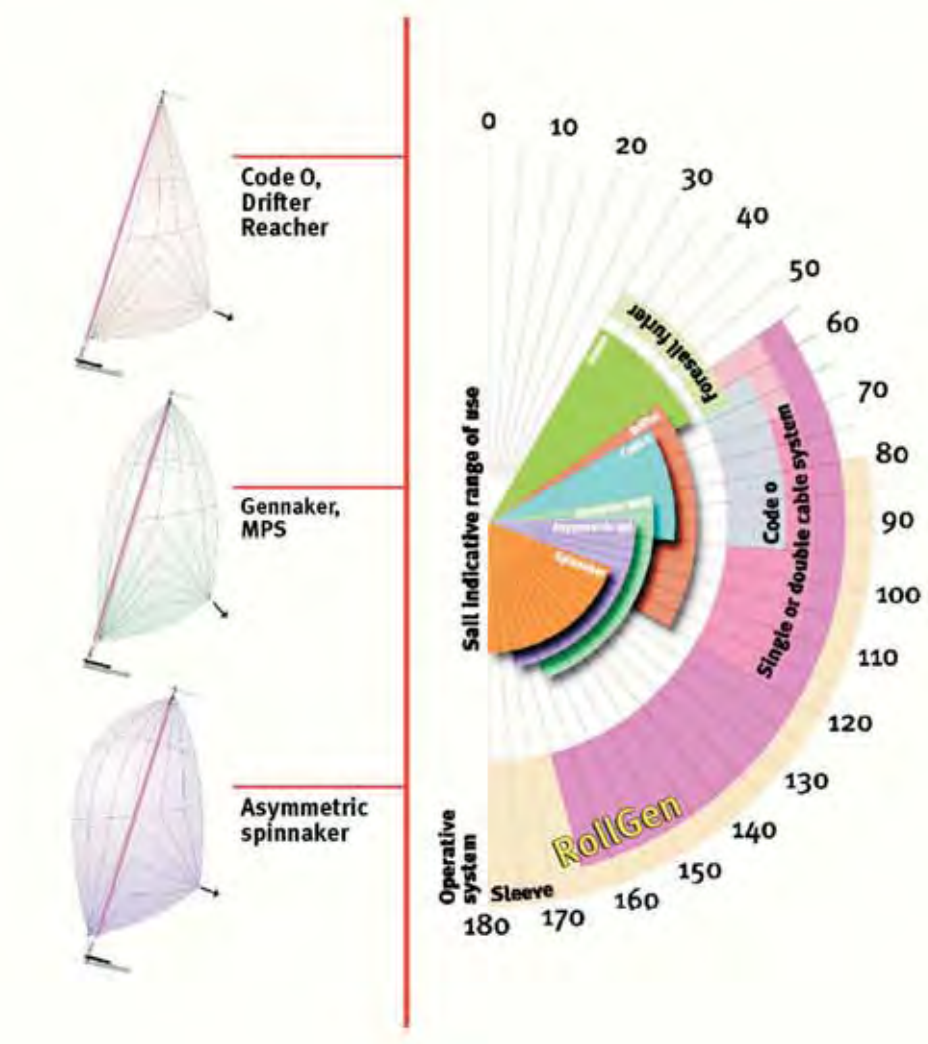
HOW TO USE IT...




- 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.

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

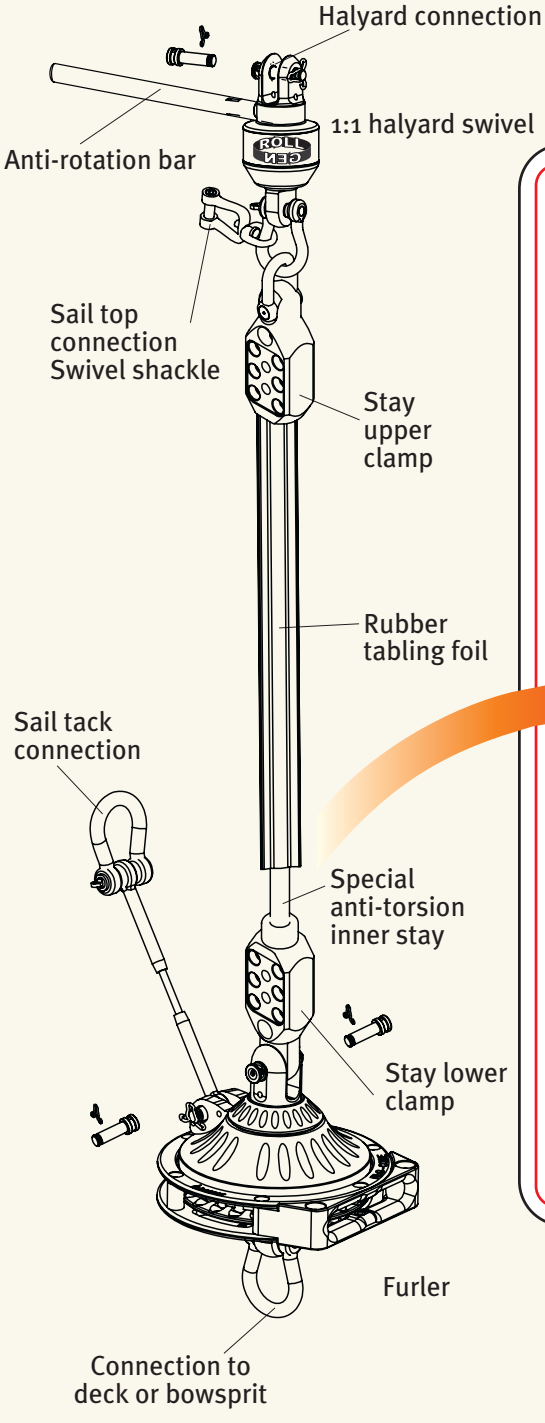
Comparison among different sails and operative systems.



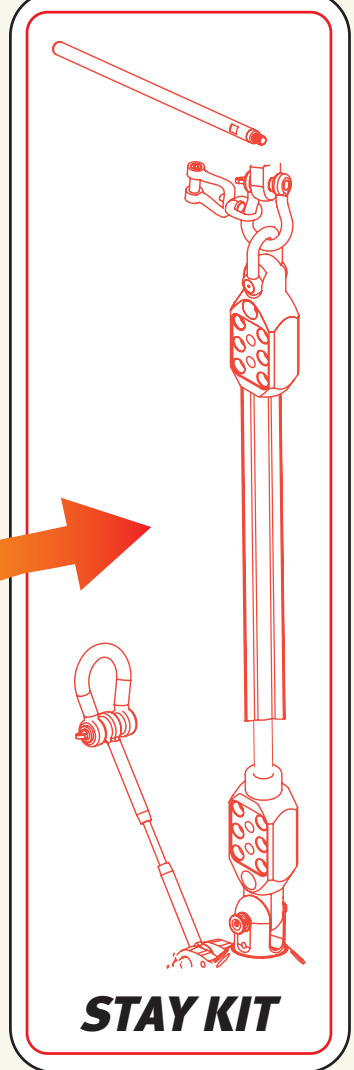
CONFIGURATION OF RLG-CODE SYSTEM

ROLLGEN = RLG

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

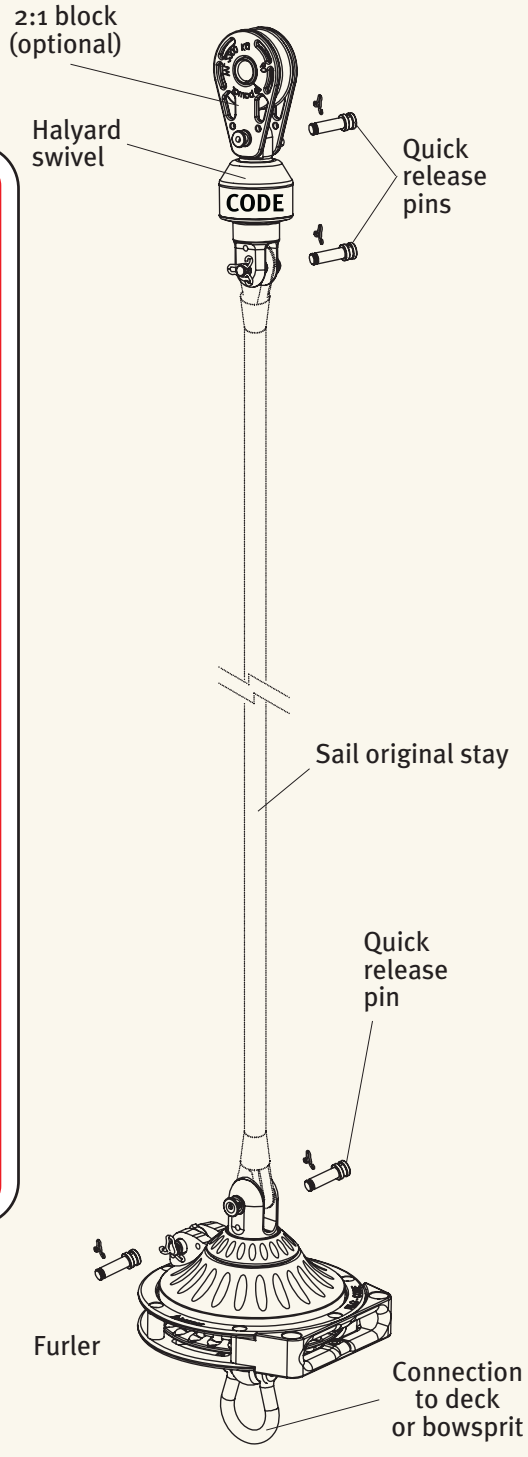


RollGen configuration includes:
- Halyard swivel
- Stay kit
- Sail tack connection
- Manual furler



CODE

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



Code configuration includes:
- Halyard swivel with 2:1 block (opt)
- Stay connection with quick release pins
- Manual furler

WHICH SAIL TO FURL... WHICH FURLER MODEL TO CHOOSE... MANUAL OR MOTORIZED...

For the choice of the right model of RLG-CODE furler and its correct dimensions and configuration, it is necessary to keep in mind the boat dimensions and the sail plan. In the same way, the furler typology, manual or motorized, sets the ending use easiness. The furlers range is extended with **manual** and **motorized** systems (electric or hydraulic), with external or flush-deck installation (**spherical connection**).

These systems have been studied to be configured, thanks to quick release pins, to furl sails such as CODE Zero, drifters, light Genoas **with luff integral to the stay** (integral on the sail supplied by the sail maker itself) and to furl **free flying** asymmetric sails such as Gennaker, asymmetric Spinnaker, MPS, Reacher (to be furled with the special RollGen = RLG stay).

Free flying sails are utilizable with **furler + halyard swivel + special stay (ROLLGEN = RLG).**

Sails with luff integral to the stay are utilizable with **furler + halyard swivel (CODE).**

(C11) - (C12)

MANUAL FURLER

"RLG-CODE" 08 WL 2,2 T
10 WL 3,3 T
20 WL 5,0 T
30 WL 8,0 T
40 WL 13,0 T

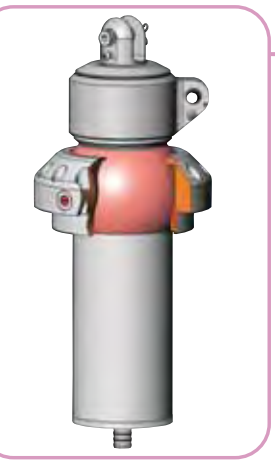
PAG. 16-18

(C20)

ELECTRIC FURLER

"RLG-CODE MEJ" WL 5,0 T

PAG. 20



(C23)

ELECTRIC FURLER WITH SPHERICAL CONNECTION

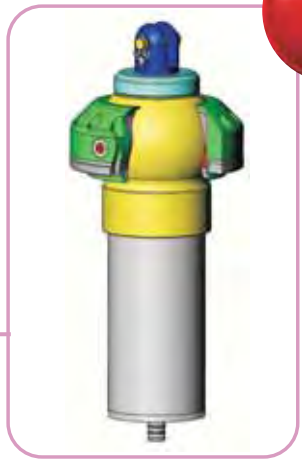
"RLG-CODE SE" WL 5,0 T

PAG. 21

(C24)

ELECTRIC FURLER WITH SPHERICAL CONNECTION

"CODE SE" WL 5,0 T



PAG. 22

(C30)

HYDRAULIC FURLER WITH SPHERICAL CONNECTION

"RLG-CODE SI" WL 8,0 T
WL 15,0 T
WL 20,0 T
WL 40,0 T

PAG. 23

(C32)

HYDRAULIC FURLER WITH SPHERICAL CONNECTION AND INTEGRATED CYLINDER

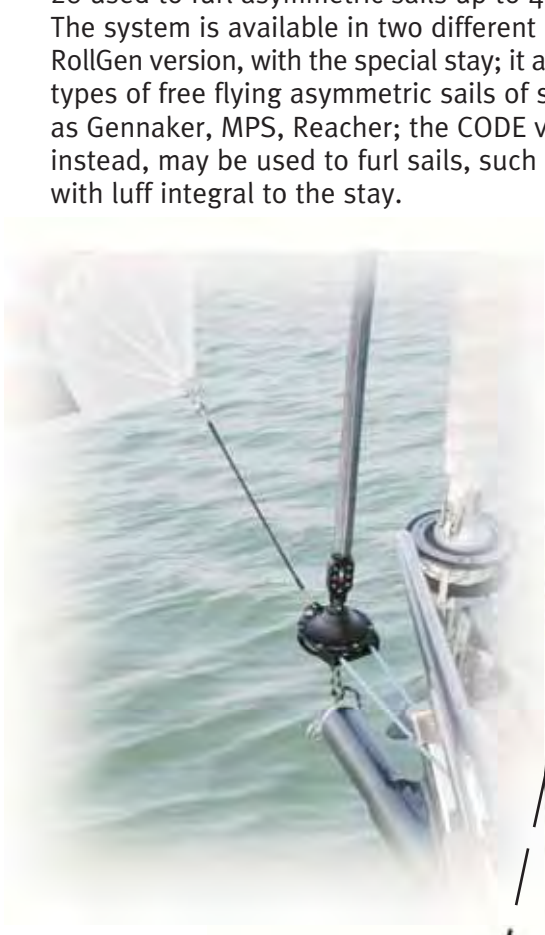
"RLG-CODE SIC" WL 10,0 T
WL 20,0 T
WL 40,0 T

PAG. 24

WL = WORKING LOAD (stay/sail luff integral to the stay)

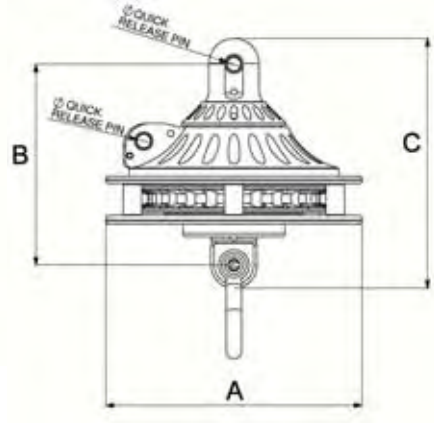
(C11) MANUAL FURLER "RLG-CODE" 08-10-20

The manual RollGen range widens with the new RLG-CODE 8, 10 and 20 used to furl asymmetric sails up to 400 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, such as Gennaker, MPS, Reacher; 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 08

RLG-CODE 10



CODE **ROLLGEN = RLG**

MANUAL RLG-CODE 08 - 10 - 20

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	RLG-CODE 08	126	130	155	8	9	0,27	1,05	0,37	900*	110**	910080001
CODE									-	2200*	110**	
RLG	RLG-CODE 10	166	135	160	10	9	0,66	1,70	0,42	1500*	200**	910100001
CODE									-	3300*	200**	
RLG	RLG-CODE 20	210	154	192	12	9	1,45	3,08	0,69	2400*	400**	910200001
CODE									-	5000*	400**	

* *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

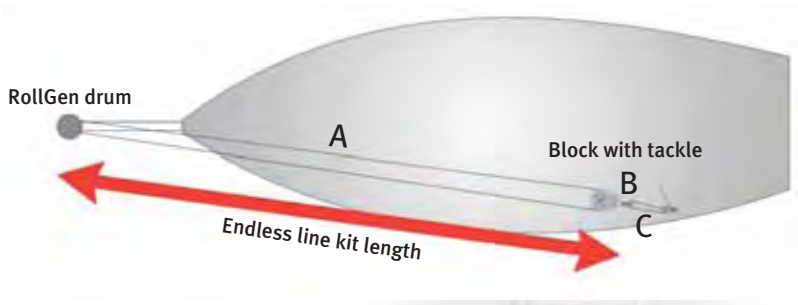
(C90) ACCESSORIES FOR RLG-CODE 08-10-20

ENDLESS LINE KIT (complete kit)

The kit includes:

- endless line (A)
- ratchet block (B)
- tackle (C)

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)
207060900	Ø 9 MM SPECIAL RLG LINE PER METER (not spliced)

A+B+C
Complete endless line kit

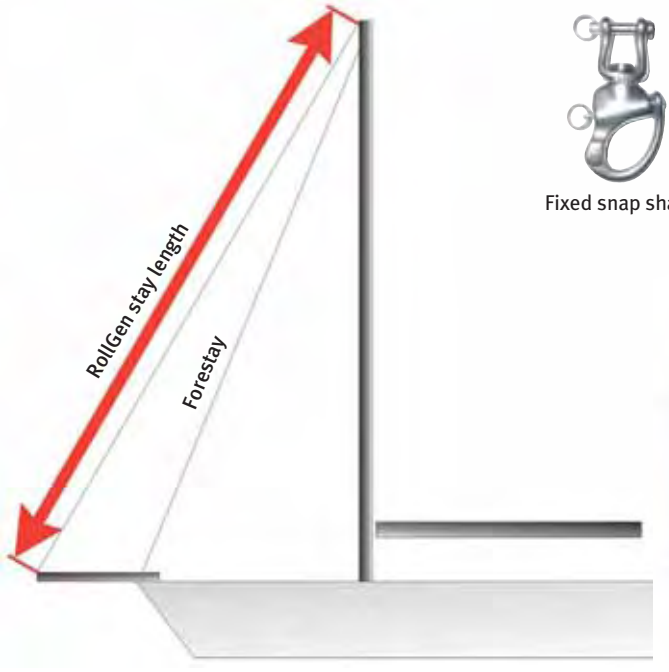
B
Ratchet block

C
Tackle kit

rollgen model	FIXED SNAP SHACKLE	SHEET STROP	Ø mm	Length m
08	901130200	207110801	8	1,40
10	901130300	207111002	10	2,75
20	901130350	207111204	12	4,10

Fixed snap shackle

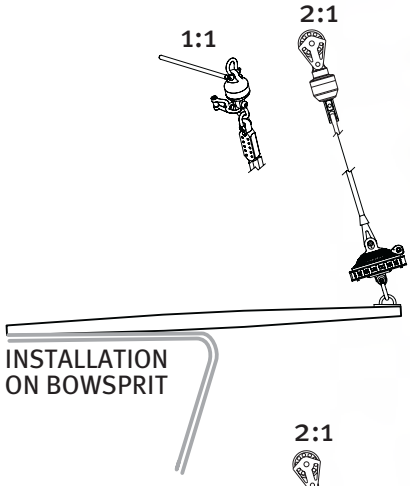
Sheet strop

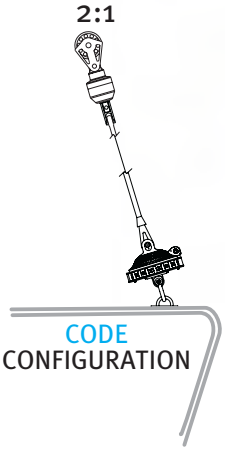


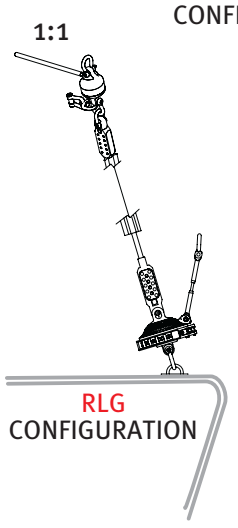
(C12) MANUAL FURLER "RLG-CODE" 30 - 40

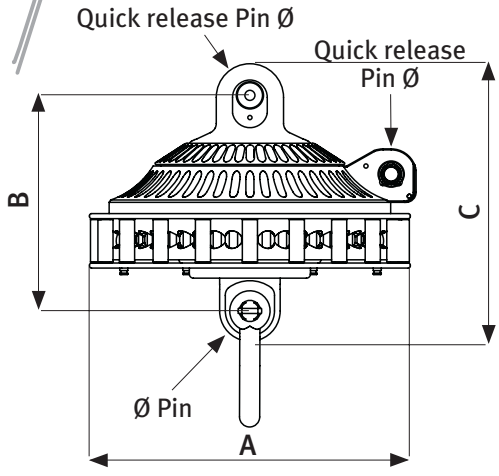
The manual RollGen range widens with the new RLG-CODE 30 and 40 used to furl asymmetric sails up to 1,000 sq.m.
The system is available in two different configurations:
RollGen version, with the special stay; it allows you to furl all common types of free flying asymmetric sails of standard construction, such as Gennaker, MPS, Reacher; 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









MANUAL RLG-CODE 30 & 40

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	RLG-CODE30	258	218	277	16	12	4,40	8,90	1,62	4000*	700**	901171300
CODE									-	8000*	700**	
RLG	RLG-CODE40	318	215	277	20	12	6,00	-	1,80	6000*	1000**	901171400
CODE									-	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 (A) - openable block (B) - tackle (C)

Ø 13 mm kit length	code
6,0M	207131306
7,0M	207131307
8,0M	207131308
9,0M	207131309
10,0M	207131310
11,0M	207131311
12,0M	207131312
13,0M	207131313
14,0M	207131314
15,0M	207131315
16,0M	207131316
17,0M	207131317
18,0M	207131318
19,0M	207131319
20,0M	207131320
21,0M	207131321
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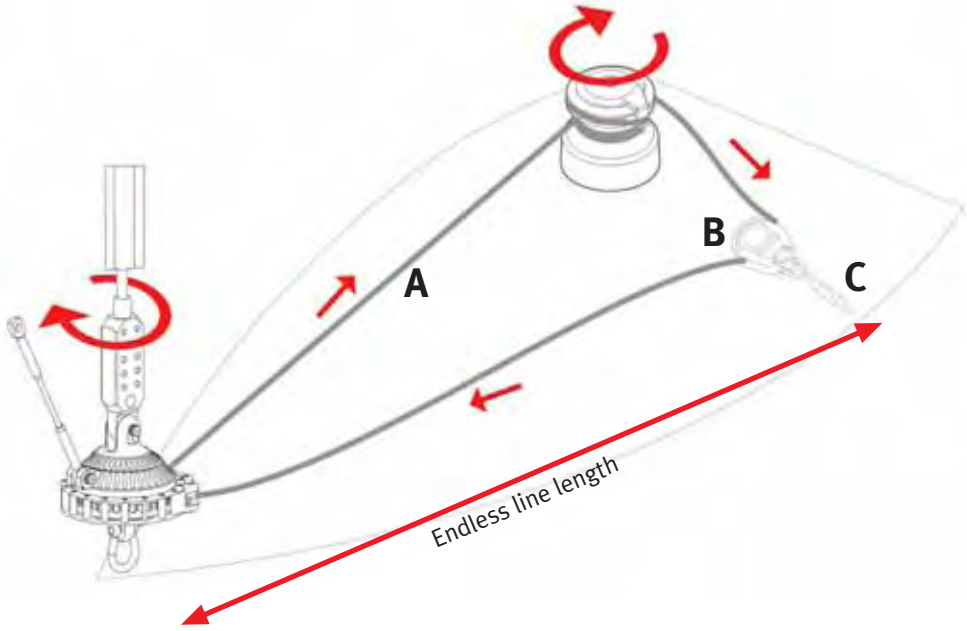
24,0M	207131324
25,0M	207131325
26,0M	207131326



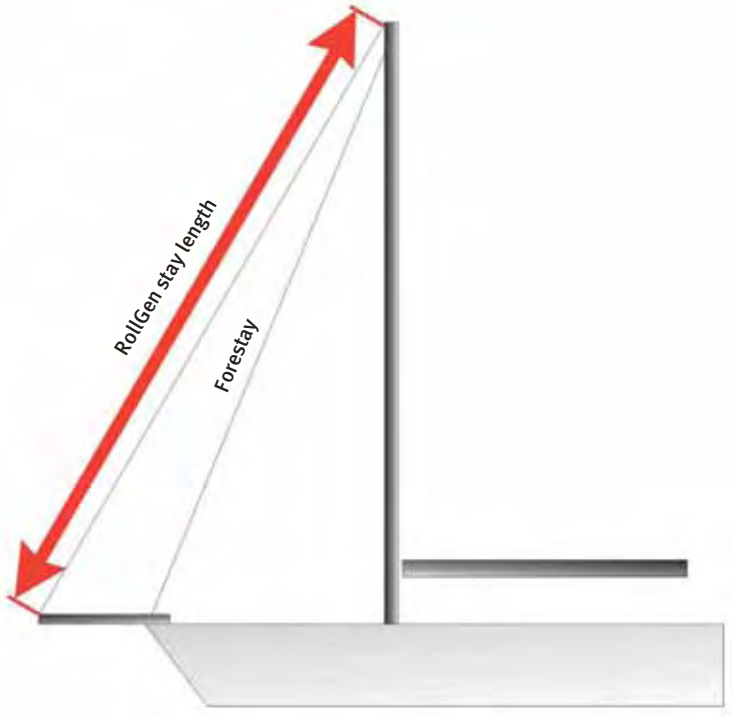
C
Tackle kit (MINI)

	description	code
C)	RLG 30-40 TACKLE KIT WITHOUT CLAMCLEAT (MINI)	901190400
C)	RLG 30-40 TACKLE KIT WITH CLAMCLEAT (MAXI)	901190500
B)	RLG30-40 OFFSHORE BLOCK – WL 1600 Kg – BL 3500 Kg – Ø 75 mm	92841
A)	Ø 13 MM SPECIAL KEVLAR LINE FOR RLG CIRCUIT PER METER (not spliced)	207091300

C
Tackle kit (MAXI)

B
Openable block

A
Special Kevlar Ø 13 mm line

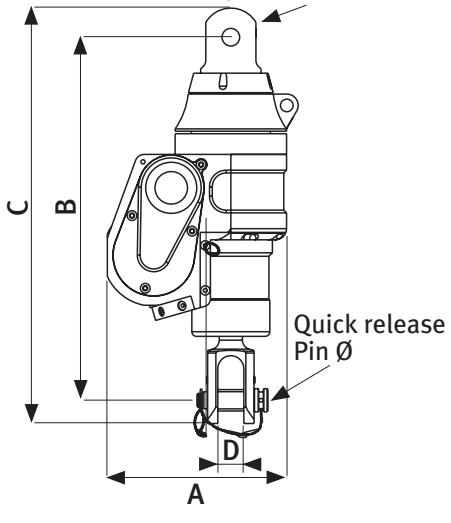


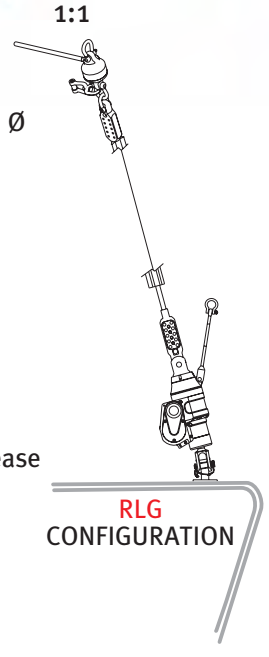
(C20) ELECTRIC FURLER "RLG-CODE MEJ"

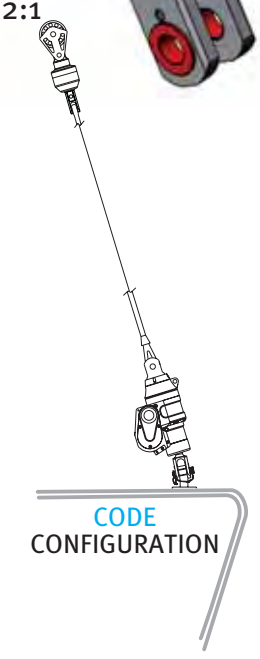
The motorized version of ROLLGEN furlers is now available.
The electric MEJ version is to be fitted either on a chainplate on deck, or on a bowsprit.
The system is available in two different configurations: RollGen version, with the special stay; it allows you to furl all common types of free flying asymmetric sails of standard construction, such as Gennaker, MPS, Reacher; 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.

MEJ 1.02 furler + RLG-CODE MEJ WL5

Vallicelli '55 C.N. YACHT 2000







MEJ ELECTRIC RLG-CODE

conf.	Model	A (mm)	B (mm)	C (mm)	D (mm)	Pins Ø (mm)	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	
RLG	RLG-CODE MEJ WL5	193	407	457	22	19	1,9	15	1,31	2400*	400**	400	40	901062001	901062002
CODE									-	5000*					

* *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

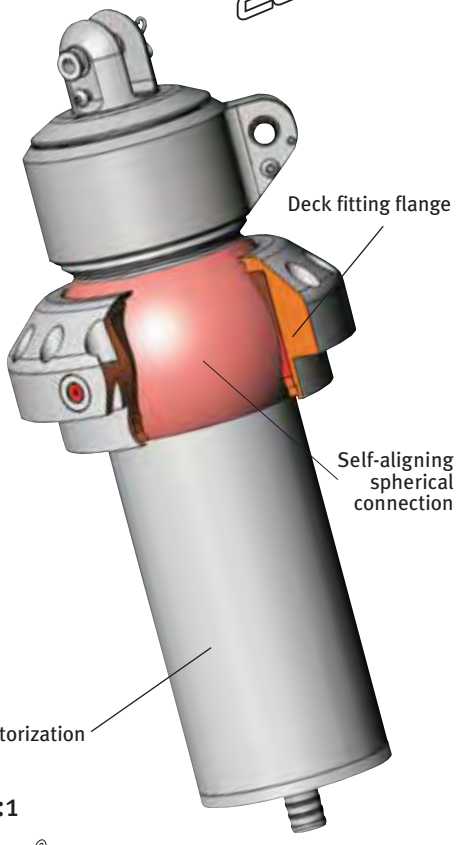
** *For the RollGen configuration we refer to a light asymmetric spinnaker*
For the Code configuration we refer to a drifter with its luff integral to the stay

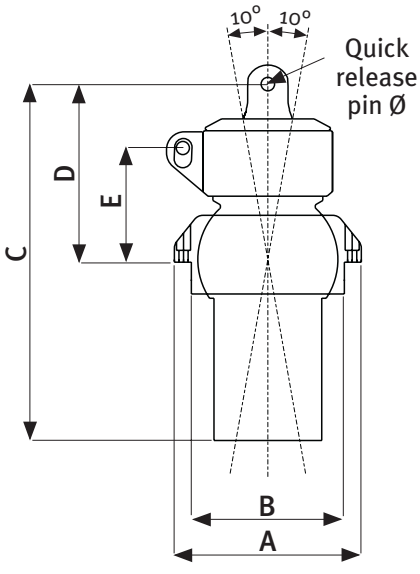
(C23) ELECTRIC FURLER WITH SPHERICAL CONNECTION "RLG-CODE SE"

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, such as Gennaker, MPS, Reacher; 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 SE WL5 - s/y Baltic 56'

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





23

ELECTRIC RLG-CODE WL 5 WITH SPHERICAL CONNECTION

conf.	Model	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	Pins Ø (mm)	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 12V	Motorization speed 24V
RLG	RLG-CODE SE WL5	178	142	377	171,5	112	12	1,90	12	1,31	2400*	400**	400	100	901063001	901063002
CODE										-	5000*					

* *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

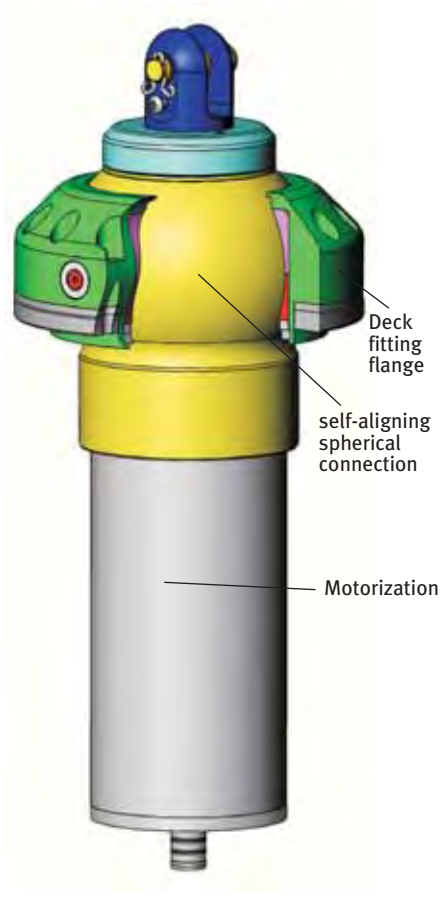
** *For the RollGen configuration we refer to a light asymmetric spinnaker*
For the Code configuration we refer to a drifter with its luff integral to the stay

(C24) ELECTRIC FURLER WITH SPHERICAL CONNECTION "CODE SE"

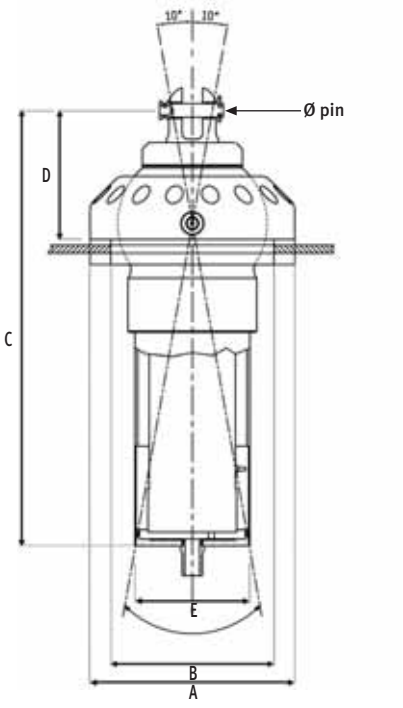
Code furlers are now available in the motorized version with self-aligning spherical fulcrum, designed for a flush-deck "structural" installation.

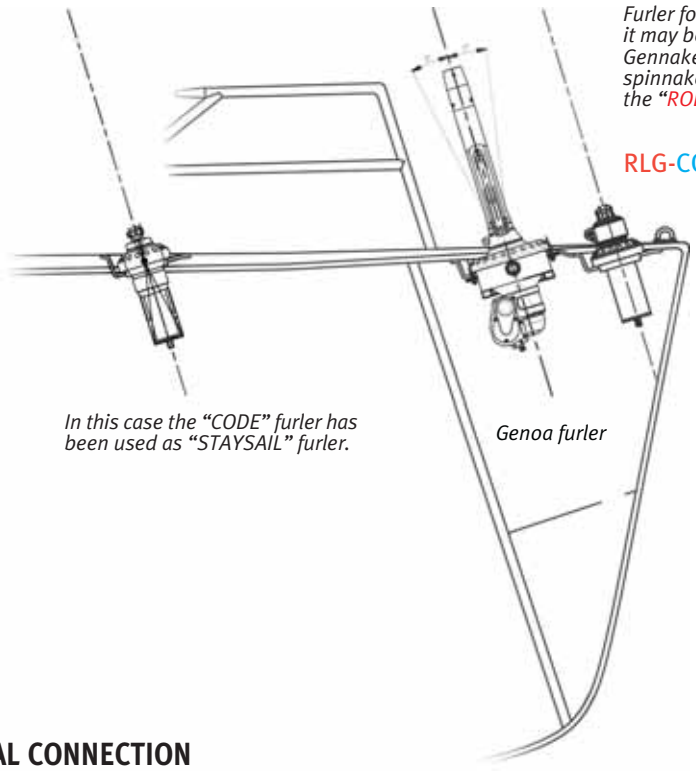
They may be used to furl sails with luff integrated in the stay, such as Code Zeros, Drifters, Light Genoa, staysails (stay not supplied)

The system is characterized by an easy and quick use of the sail. You just have to hoist the stay with the sail furled around it by using its halyard, tensioning and correctly lock the halyard depending on conditions, then unfurl the sail.



CODE SE WL 5 - s/y Baltic 56'





In this case the "CODE" furler has been used as "STAYSAIL" furler.

Genoa furler

Furler for CODE-type sail, it may be used to furl Gennakers or asymmetric spinnakers by installing the "ROLLGEN" stay.

RLG-CODE

ELECTRIC CODE SE WL 5 WITH SPHERICAL CONNECTION

conf.	Model	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	Pin Ø (mm)	Std h.swivel weight (Kg)	Furler weight (Kg)	Working load (Kg)	Indicative max sail area (mq)	Motor power (W)	Duty (S3)	Max speed (rpm)	Motorization code 12v	Motorization code 24v
CODE	CODE SE WL5	178	142	379,5	112,5	100	12	1,90	10,5	5000*	400**	400	15'	100	901064001	901064002

* *For the Code configuration we indicate max working load on the furler and halyard swivel structures*
** *For the Code configuration we refer to a drifter with its luff integral to the stay*

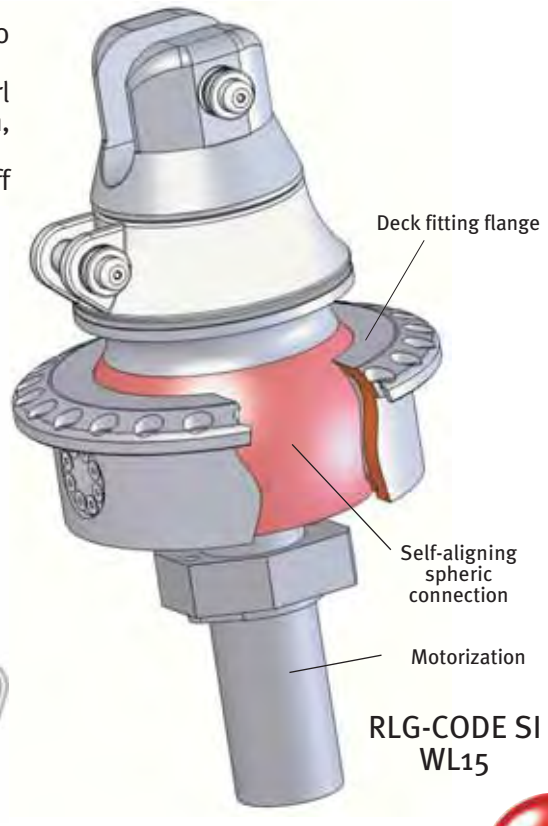
(C30) HYDRAULIC FURLER WITH SPHERICAL CONNECTION "RLG-CODE SI"

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, such as Gennaker, MPS, Reacher; 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.

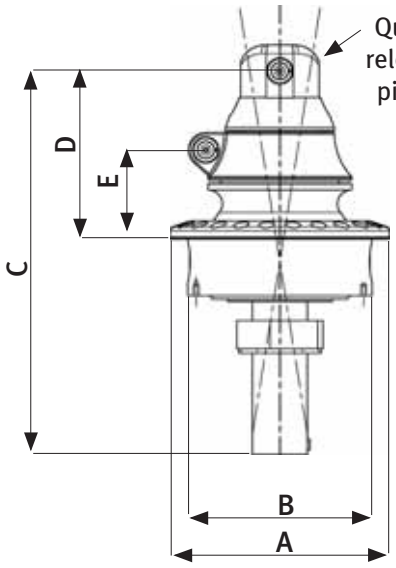
Perini Navi 40 m - Gennaker 800 sq.m.

Hydraulic furler GFI 35 + RLG-CODE SI WL8/30°

RLG
CONFIGURATION



RLG-CODE SI WL15



CODE
CONFIGURATION

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HYDRAULIC RLG-CODE SI WITH SPHERICAL CONNECTION

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	RLG-CODE SI WL8	252	212	440	223	129	19	4,40 (6,00)	23,00	1,62 (1,80)	4000 (6000)*	500 (1000)**	140	100 @ 5 lt/min.	901803100
CODE										-	8000*				
RLG	RLG-CODE SI WL8/30°	350	300	653	234	138	19	4,40 (6,00)	50,00	1,62 (1,80)	4000 (6000)*	500 (1000)**	175	62,5 @ 5 lt/min.	901803200
CODE										-	8000*				
RLG	RLG-CODE SI WL15	252	212	442	193	102	26	4,40 (6,00)	25,00	1,62(1,80)	4000(6000)*	700 (1000)**	140	100 @ 5 lt/min.	901803300
CODE										-	15000*				
RLG	RLG-CODE SI WL20	360	300	646	225	120	26	6,00	62,00	1,80	6000*	1000 (1500)**	175	80 @ 10 lt/min.	901803400
CODE										-	20000*				
RLG	RLG-CODE SI WL40	490	400	845	355	185	40	-	-	-	-	-	175	62,5 @ 10 lt/min.	901803600
CODE											40000*				

* *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

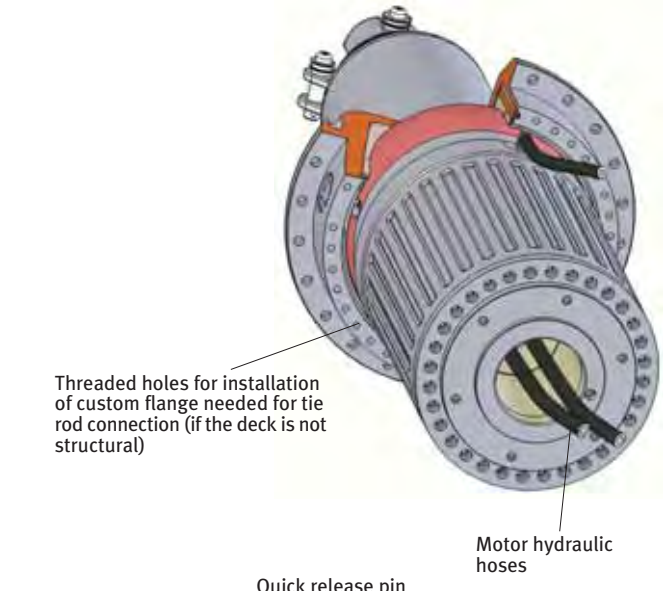
** *For the RollGen configuration we refer to a light asymmetric spinnaker*
For the Code configuration we refer to a drifter with its luff integral to the stay

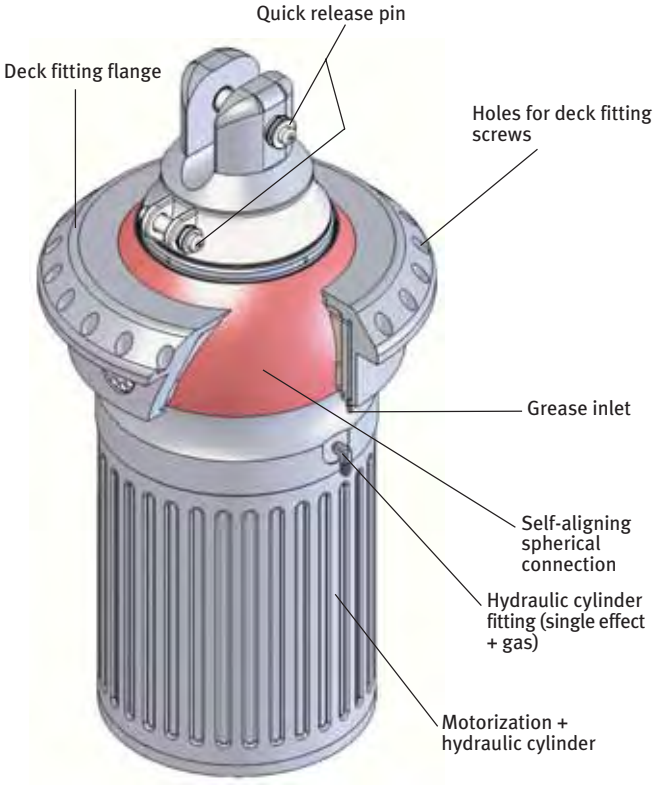
(C32) HYDRAULIC FURLER WITH SPHERIC CONNECTION AND INTEGRATED CYLINDER "RLG-CODE SIC"

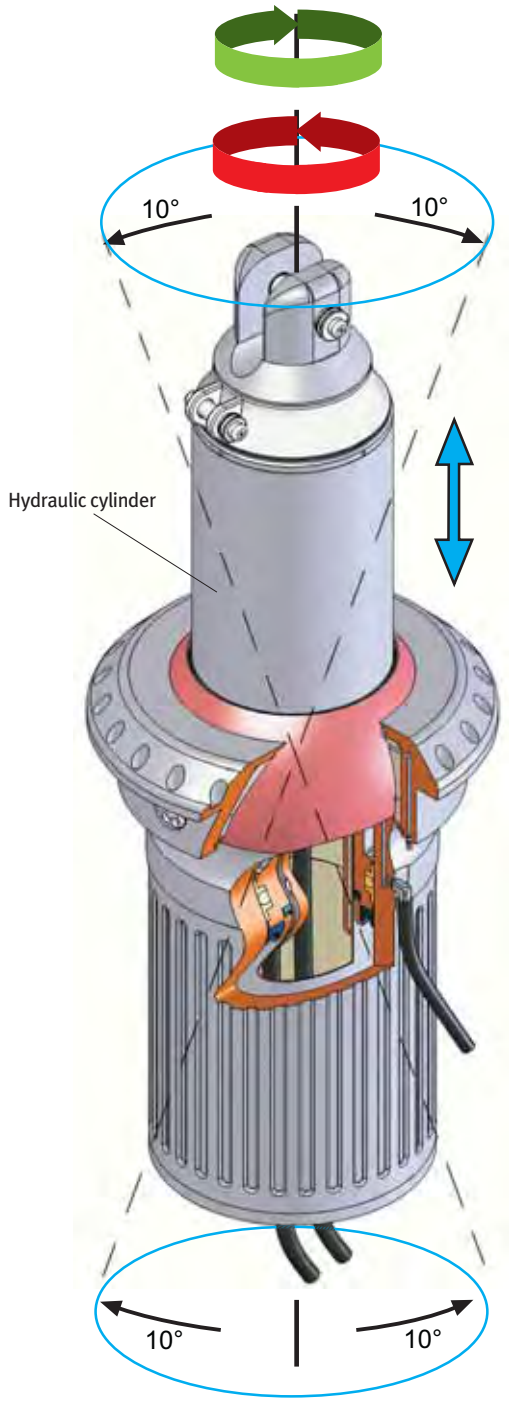
The RLG-CODE motorized furlers with self-aligning spherical fulcrum, designed for a structural flush-deck installation, are now available with integrated stay tensioning cylinder.

The system allows for:
- the use of any type of flexible stay (PBO, Kevlar, etc... not included in the supply)
- a simple and fast replacement of sails, thanks to both its shape and quick release pins (included)
- stay / sail tension adjustment thanks to the integrated hydraulic cylinder (custom strokes available on demand)
- furling and unfurling any type of sail such as Code Zero, Drifter, Genoa, Blade, Jib, etc...
- an easy and quick use of the sail. You just have to hoist the stay with the sail furled around it by using its halyard; correctly lock the halyard; proceed by tensioning the stay depending on conditions; then unfurl the sail.

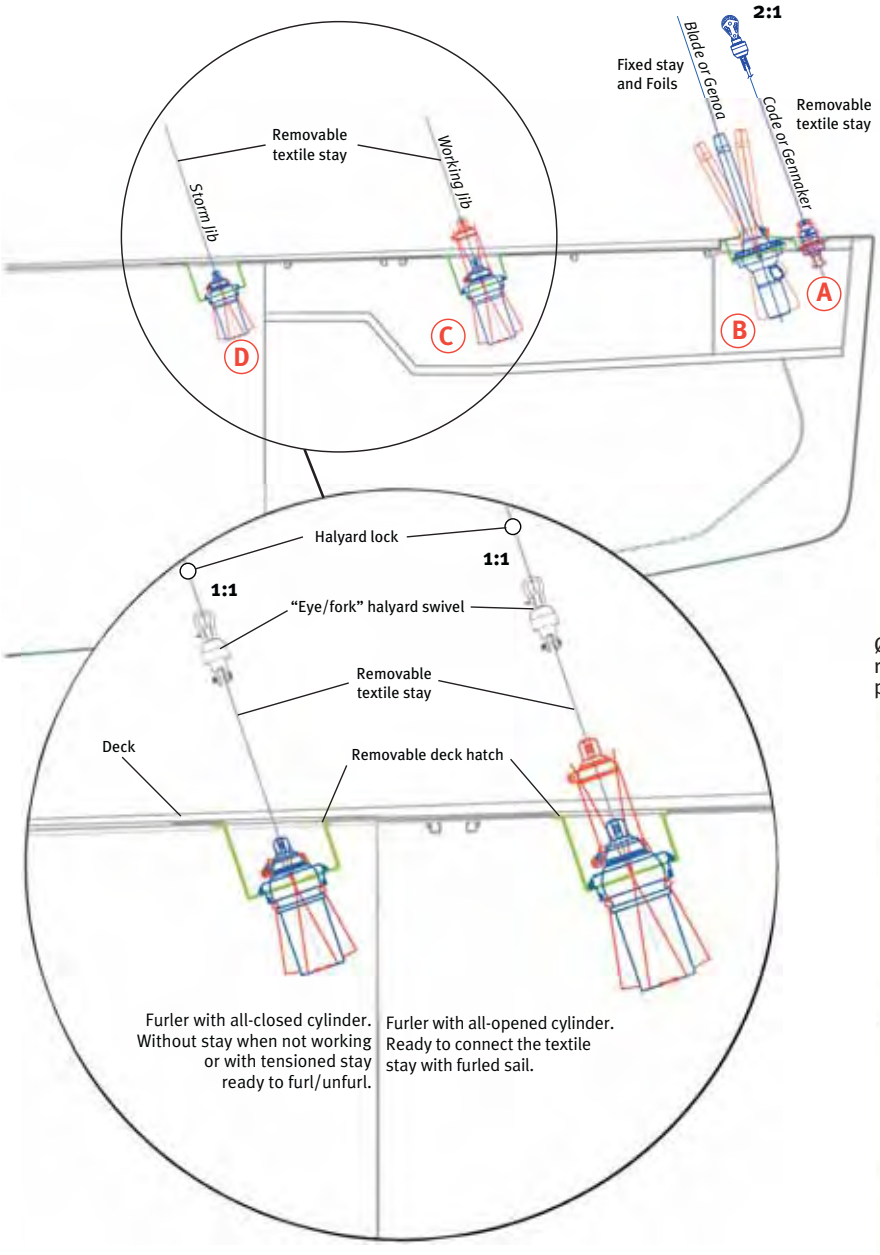
Should the furler be located on the bow in a position that allows for the use of an asymmetric sail with free flying luff (gennaker, asymmetric spinnaker ...), you may then use the RollGen stay kit in order to furl / unfurl such sails.







Performance sailing yacht configured with furlers with spherical connection

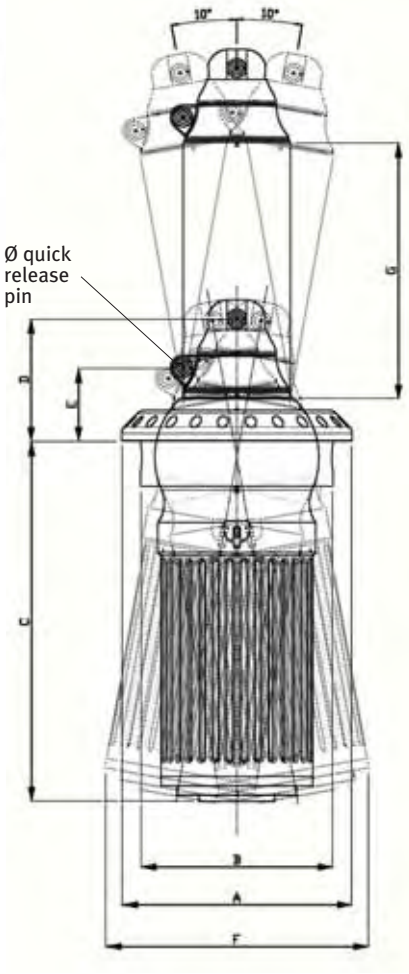


A) **RLG-CODE SI WL 15T**, furls "Code" sails with removable textile stay.

B) **GFSI 35C**, furls "Genoas" on a fixed stay and foil.

C) **RLG-CODE SIC WL 20T**, furls a "working jib" on a removable textile stay.
It includes integrated realtime stay tensioning cylinder for stay working load of 20 tons.

D) **RLG-CODE SIC WL 10T**, furls a "working jib" on a removable textile stay.
It includes integrated realtime stay tensioning cylinder for stay working load



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HYDRAULIC RLG-CODE FURLER WITH SPHERICAL CONNECTION AND INTEGRATED CYLINDER

conf.	model	A Ø (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F 10°+10° (mm)	G ***cylinder stroke(mm)	quick release pins Ø (mm)	std halyard swivel weight (kg)	furler weight (kg)	working load (kg)	Indicative max sail area (sq.m.)	cylinder max working pressure (bar)	motor oil pressure (bar)	Speed range (rpm)	Motorization code
RLG-CODE	RLG-CODE SIC WL10	365	305	623	195	117	440	450	19	4,40	80	4000 (6000)* 10000*	700 (1000)**	350	140	100 @ 5 lit/min	901805000
RLG-CODE	RLG-CODE SIC WL20	430	365	636	236	129	500	450	25	6,00	123	4000 (6000)* 20000*	1000 (1500)**	350	175	75 @ 10 lit/min	901805500
RLG-CODE	RLG-CODE SIC WL40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	901806000

** for the RollGen configuration we indicate 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

**** custom strokes of 500, 600 mm and above are available upon demand*

HOW TO PLACE AN ORDER:

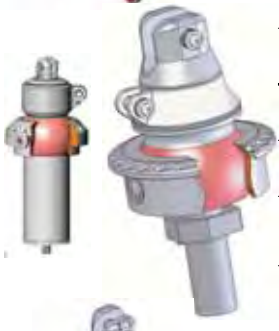
In order to choose the right RLG-CODE furler model and all its accessories you need to take some measures onboard.

- 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 08-10-20** endless like kit, please refer to page 17, **for manual RLG-CODE 30-40** endless like kit, please refer to page 19
- **For electric models, MEJ WL5 + SE WL5 12-24 V** electric accessories, please refer to page 46 of Catalogue n.10
- **For hydraulic models, SI WL10/20/40** hydraulic accessories, please refer to page 104 of Catalogue n.10



CHOICE OF THE RLG-CODE FURLER		RLG-CODE		COD.
C11	MANUAL DRUM	**08**	WL 2,2 T	**910080001**
"	MANUAL DRUM	**10**	WL 3,3 T	**910100001**
"	MANUAL DRUM	**20**	WL 5,0 T	**910200001**
C12	MANUAL DRUM	**30**	WL 8,0 T	**901171300**
"	MANUAL DRUM	**40**	WL 13,0 T	**901171400**
C20	ELECTRIC MOTORIZATION	**MEJ**	WL 5,0 T 12V	**901062001**
"	ELECTRIC MOTORIZATION	**MEJ**	WL 5,0 T 24V	**901062002**
C23	ELECTRIC MOTORIZATION	**SE**	WL 5,0 T 12V	**901063001**
"	ELECTRIC MOTORIZATION	**SE**	WL 5,0 T 24V	**901063002**
C30	HYDRAULIC MOTORIZATION	**SI**	WL 8,0 T	**901803100**
"	HYDRAULIC MOTORIZATION	**SI**	WL 8,0 T 30°	**901803200**
"	HYDRAULIC MOTORIZATION	**SI**	WL 15,0 T	**901803300**
"	HYDRAULIC MOTORIZATION	**SI**	WL 20,0 T	**901803400**
"	HYDRAULIC MOTORIZATION	**SI**	WL 40,0 T	**901803600**
C32	HYDRAULIC MOTORIZATION + CYLINDER	**SIC**	WL 10,0 T	**901805000**
"	HYDRAULIC MOTORIZATION + CYLINDER	**SIC**	WL 20,0 T	**901805500**
"	HYDRAULIC MOTORIZATION + CYLINDER	**SIC**	WL 40,0 T	**901806000**

CHOICE OF THE FURLER		CODE		COD.
C24	ELECTRIC MOTORIZATION	**SE**	WL 5,0 T 12V	**901064001**
"	ELECTRIC MOTORIZATION	**SE**	WL 5,0 T 24V	**901064002**

CHOICE OF THE HALYARD SWIVEL

		RLG-CODE	COD.
C60	HALYARD SWIVEL FOR RLG-CODE **08** EYE/FORK 1:1		**910080003**
"	HALYARD SWIVEL FOR RLG-CODE **10** EYE/FORK 1:1		**910100003**
"	HALYARD SWIVEL FOR RLG-CODE **20** EYE/FORK 1:1		**910200003**
C62	HALYARD SWIVEL FOR RLG-CODE **30** EYE/FORK 1:1		**910300003**
"	HALYARD SWIVEL FOR RLG-CODE **35** EYE/FORK 1:1		**910350003**
"	HALYARD SWIVEL FOR RLG-CODE **45** EYE/FORK 1:1		**910450003**

CHOICE OF THE STAY (KIT)

			RLG-CODE	COD.
C64	RLG-**MEJ 1.02** STAY	L=21,0 M (KIT 20)	WITH SHACKLES AND TACK ROD	**901712021**
"	RLG **08** STAY	L= 9,0 M (KIT)	WITH SHACKLES AND TACK ROD	**910080002**
"	RLG **10** STAY	L=16,0 M (KIT)	WITH SHACKLES AND TACK ROD	**910100002**
"	RLG **20** STAY	L=21,0 M (KIT)	WITH SHACKLES AND TACK ROD	**910200002**
C66	RLG **30** STAY	L=28,0 M (KIT)	WITH SHACKLES AND TACK ROD	**901711328**
"	RLG **40** STAY	L=32,0 M (KIT)	WITH SHACKLES AND TACK ROD	**901711433**
"	RLG **08** EXTRA STAY	L= 1,0 M		**901721000**
"	RLG **10** EXTRA STAY	L= 1,0 M		**901721100**
"	RLG **20** EXTRA STAY	L= 1,0 M		**901721200**
"	RLG **30** EXTRA STAY	L= 1,0 M		**901721300**
"	RLG **40** EXTRA STAY	L= 1,0 M		**901721400**

CHOICE OF THE ENDLESS LINE (KIT)

		RLG-CODE 08-10-20
C90	ENDLESS LINE	see pag. 17
"	FIXED SNAP SHACKLES	see pag. 17
"	SHEET STROP	see pag. 17

CHOICE OF THE ENDLESS LINE (KIT)

		RLG-CODE 30-40
C91	ENDLESS LINE + ACCESSORIES	see pag. 19

CHOICE OF THE BLOCK

		RLG-CODE	COD.
C90	Ø 60 BLOCK FOR RLG-CODE **08** - 2:1		**910080004**
"	Ø 75 BLOCK FOR RLG-CODE **10** - 2:1		**910100004**
"	Ø 96 BLOCK FOR RLG-CODE **20** - 2:1		**910200004**
C91	Ø 130 BLOCK FOR RLG-CODE **30** - 2:1		**910350004**
"	Ø 150 BLOCK FOR RLG-CODE **40** - 2:1		**910450004**
"	Ø 150 BLOCK FOR RLG-CODE **50** - 2:1		**910450003**

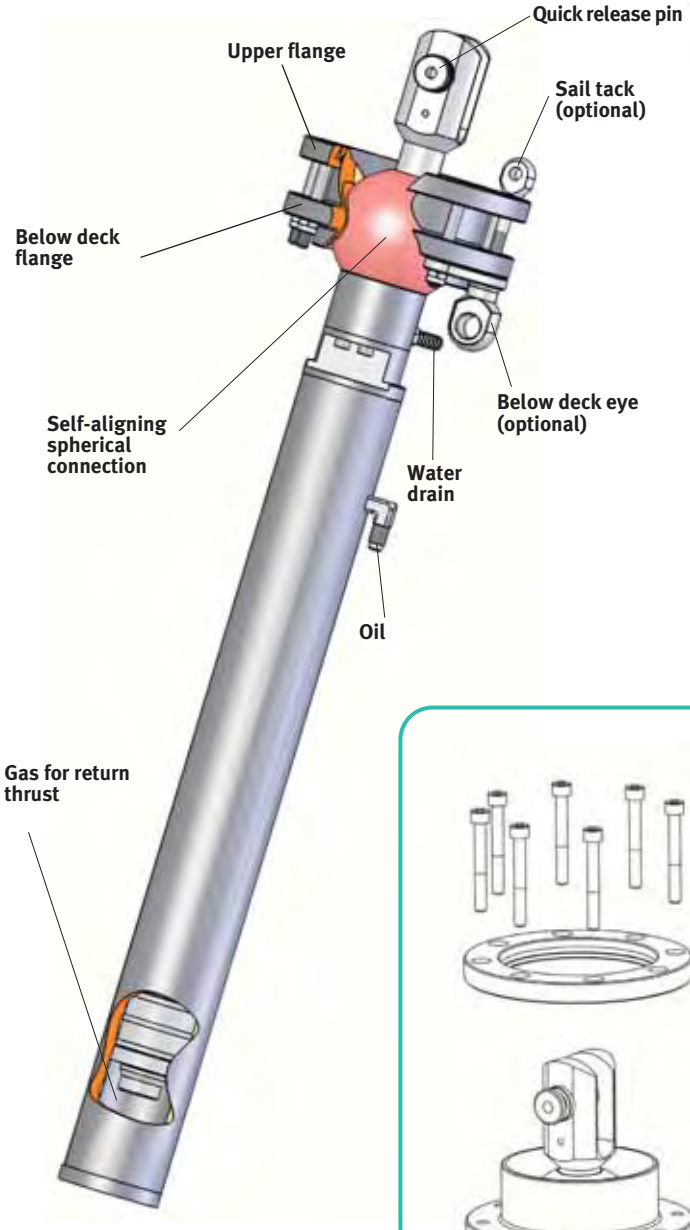
(E04) HYDRAULIC STAY TENSIONING CYLINDER WITH SPHERICAL FULCRUM "BSCT"

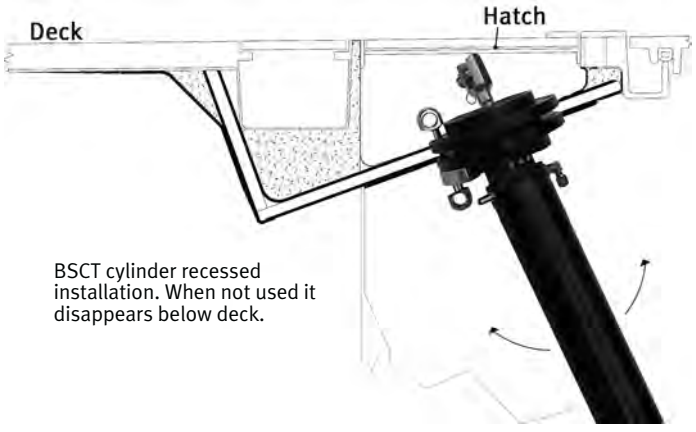
An innovative evolution of the "classic" hydraulic stay tensioning cylinder. It makes use of a special spherical connection on deck which allows for the correct alignment of the stay. Moreover, the system keeps the cylinder body water-tight below deck, thus reducing the overall dimensions of the parts exposed on deck.
Mainly indicated for inner forestays and backstays.

The cylinders are supplied with ram pressure release. Such pressure is charged depending on the release speed required with a pneumatic valve placed on the cylinder's body on the extremity opposite to the ram to be adjusted.
Gas pressure is charged at indicatively 100 PSI (7.0 Bar)

- Max pressure 5000 PSI (roughly 345 BAR)

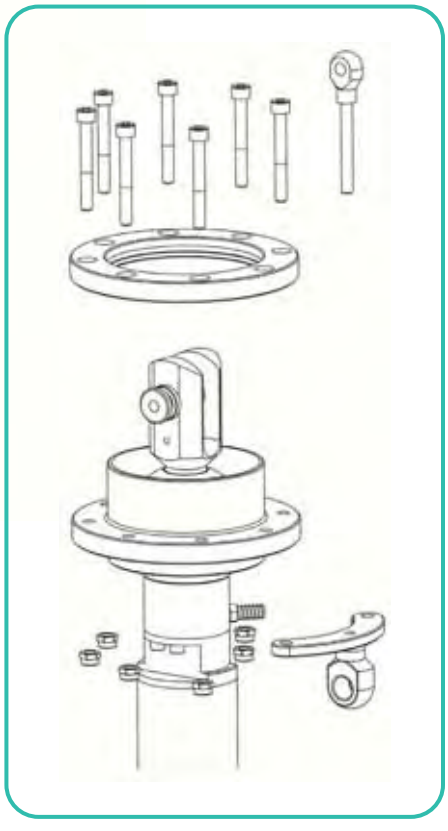
We may supply custom lengths and strokes on demand





BSCT cylinder recessed installation. When not used it disappears below deck.

BSCT cylinder flush-deck installation. When not used shows a very low profile on the deck.



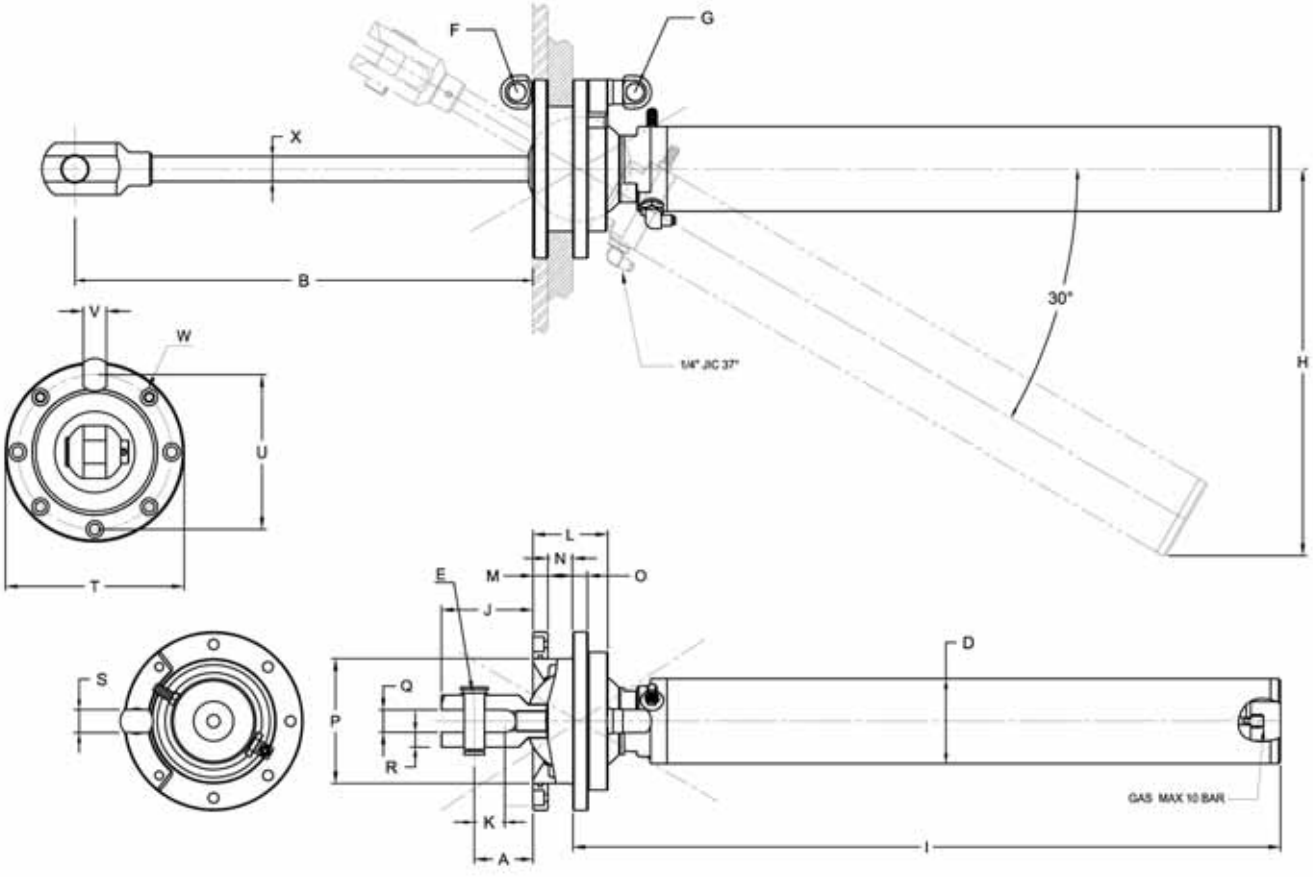
HOW TO PLACE AN ORDER

In the table below you will find the data needed in order to identify the cylinder with spherical fulcrum and the optional accessories for the different applications.

1. choose the model depending on stay diameter
2. determine the stroke length; decide whether the cylinder with standard stroke is enough, otherwise quantify the extra stroke required
3. check whether the deck is structural; if not, you have to provide the cylinder with the below deck eye fitting for the connection of the tie rod.
4. should the cylinder be used for the staysail, we may supply the sail tack eye connection

Rod #	Wire Ø	Breaking Load	Working load Max*	Ram X Ø	All closed A	All open B	Stroke C	Basic cylinder code stroke 400 mm	Extra stroke code 100 mm	Below deck eye	Sail tack eye connection
	mm	Kg	Kg	mm	mm	mm	mm				
-22	12	11.976	5.556	22	48	448	400	**1041002120221**	**901850101**	**901850102**	**901850103**
-30	14	17.998	9.939	25	59	459	400	**1041002140301**	**901850201**	**901850202**	**901850203**
-48	16	24.524	15.185	30	65	465	400	**1041002160481**	**901850301**	**901850302**	**901850303**
-60	19						400	**1041002190601**	**901850401**	**901850402**	**901850403**
-90	26						400	**1041002260901**	**901850501**	**901850502**	**901850503**
-150	32						400	**1041002321501**	**901850601**	**901850602**	**901850603**

* Max pressure 5000 PSI (roughly 345 BAR)



CYLINDERS SPECIFICATIONS

Rod #	Wire Ø	D Ø	E Ø	F Ø	G Ø	H	I	J	K	L	M	N	O	P Ø	Q	R	S	T Ø	U Ø	V	W	Code*
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	
-22	12	70	19	9	15	375	731	78	31	70	15	25	15	110	19,5	13	20	160	138	14,5	M8	**1041002120221**
-30	14	85	22,2	11	18	387	709	92	31	75	15	25	15	125	22,5	15	23	179	154	18	M10	**1041002140301**
-48	16	105	26	13	21	474	972	74	38	88	20	24	20	148	26	16	30	209	184	22	M12	**1041002160481**
-60	19																					**1041002190601**
-90	26																					**1041002260901**
-150	32																					**1041002321501**

* Basic stroke 400 mm, for increased stroke see upper table

(E05) HYDRAULIC STAY TENSIONING CYLINDER WITH SPHERICAL FULCRUM AND MECHANICAL LOCK "BSCTBM"

A new line of hydraulic stay tensioning cylinders with spherical fulcrum supplied with a mechanical lock. They allow for the hydraulic pressure release, while keeping the stay under tension mechanically: fundamental for maximum safety when sailing for long distances. Moreover, the system keeps the cylinder body water-tight below deck, thus reducing the overall dimensions of the parts exposed on deck, and allowing for the correct alignment of the stay, thanks to the spherical anchoring system.

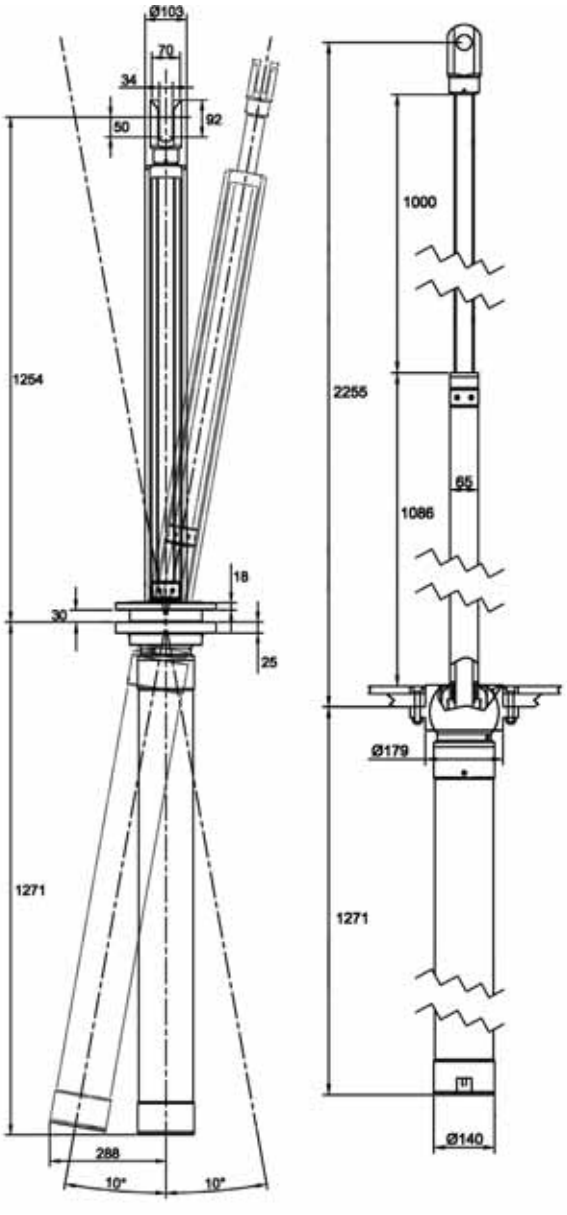
The cylinders are supplied with ram pressure release. Such pressure is charged depending on the release speed required with a pneumatic valve placed on the cylinder's body on the extremity opposite to the ram to be adjusted.
Gas pressure is charged at indicatively 100 PSI (7.0 Bar)

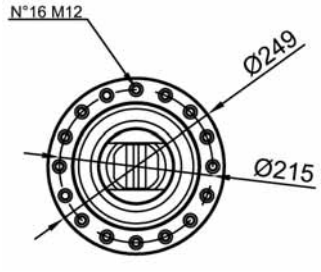
- Max pressure 5000 PSI (roughly 345 BAR)

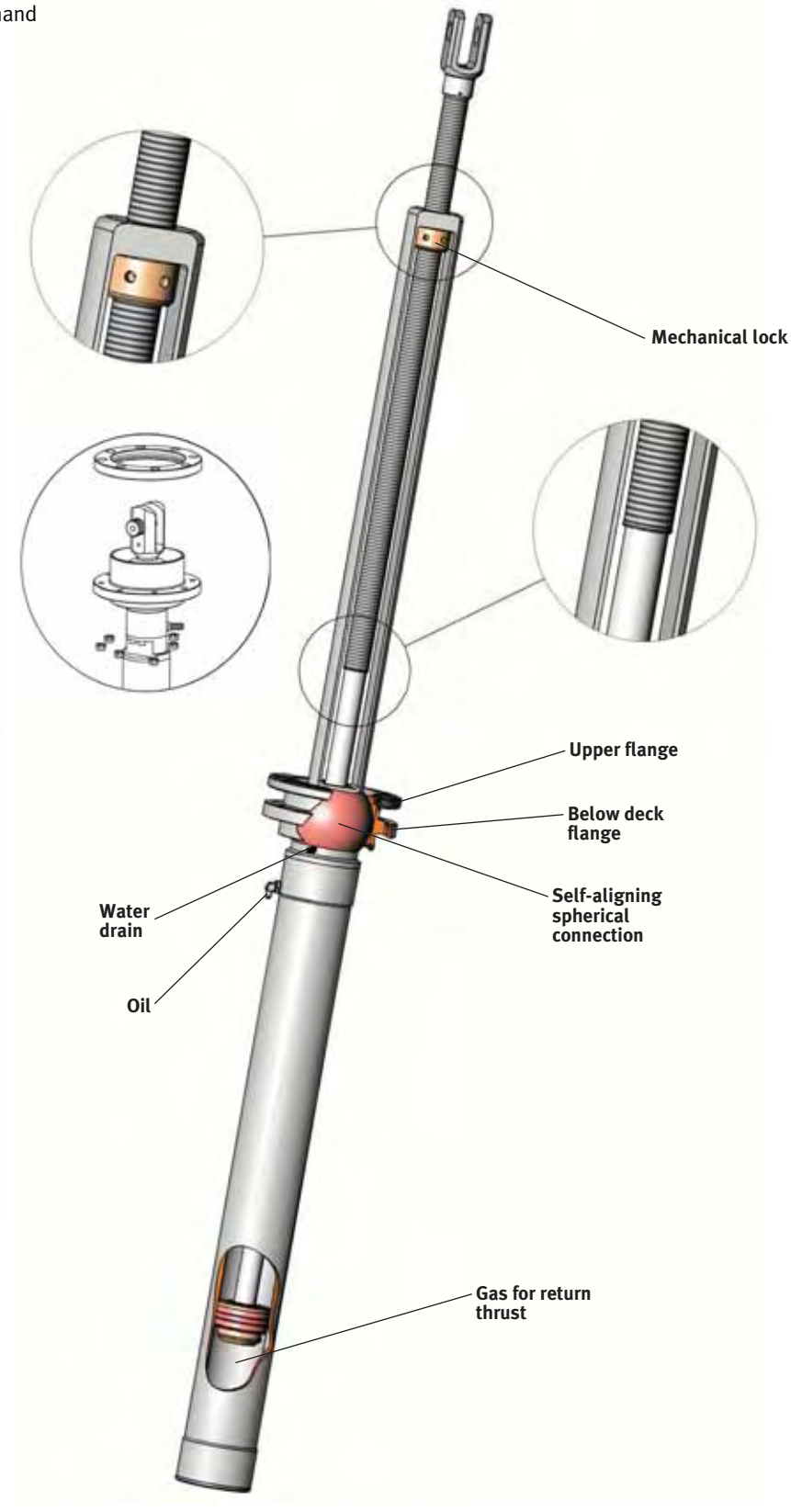
For available sizes see Cylinders dimensioning in the specs sheet on page 92 of Catalogue n.10

We may also supply custom lengths and strokes on demand

BSCTBM - 91



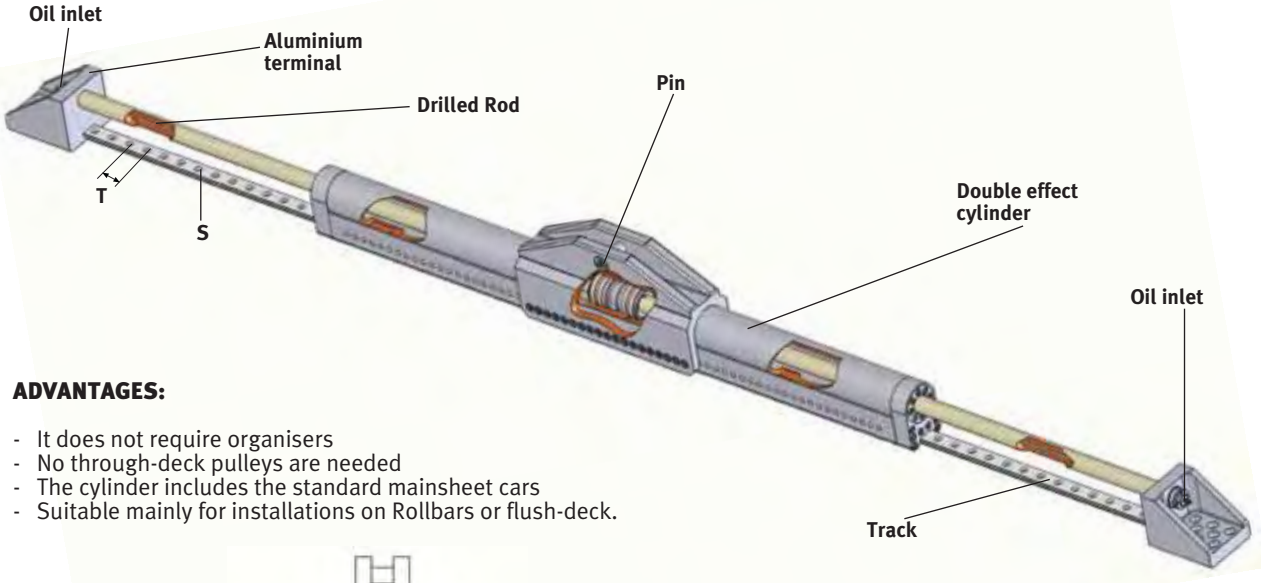




(E06) HYDRAULIC CYLINDER FOR MAINSHEET TRAVELLER "BCPT"

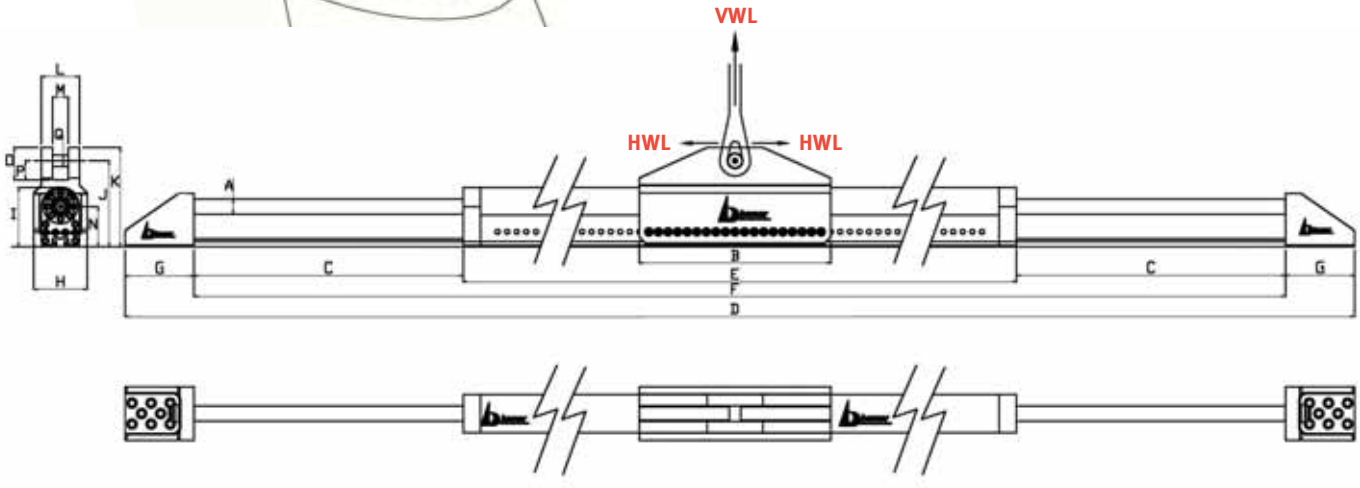
Bamar has come out with a range of double effect cylinders for the control of the mainsheet traveller. It is a complete system, simple to install. It allows for the immediate and safe control of the mainsheet traveller position.
It is manufactured with first quality materials made for marine environment. Cylinder body and terminals are made with black hard-cote anodised aluminium; tracks, rams and pins are in polished stainless steel; sliders are made from high load self-lubricating plastics.

The system is made up by:
- Double ram cylinder
- Track on which the cylinder slides
- Fork for mainsheet connection, fitted onto the cylinder's body
- Track / cylinder rams terminal blocks



ADVANTAGES:

- It does not require organisers
- No through-deck pulleys are needed
- The cylinder includes the standard mainsheet cars
- Suitable mainly for installations on Rollbars or flush-deck.



Rod #	VWL Max vertical working load	HWL Max horizontal working load*	A Rod Ø	B	C cylinder stroke	D	E	F	G	H	I	J	K	L	M	N	O	P	Q Ø	S	T	Code
	Kg	Kg	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	
-30	12500	8500	30	500	700 + 700																	104130103000
-40	12500	12500	40	500	700 + 700	3498	1730	3138	180	140	155	225	260	100	41	105	85	50	30	M8	50	104130104000

* Max pressure 5000 PSI (roughly 345 BAR)

We may supply custom lengths and strokes on demand.

For available sizes see Cylinders dimensioning in the specs sheet on page 92 of Catalogue n.10

(E07) HYDRAULIC OUTHAUL CYLINDER "BCPO"

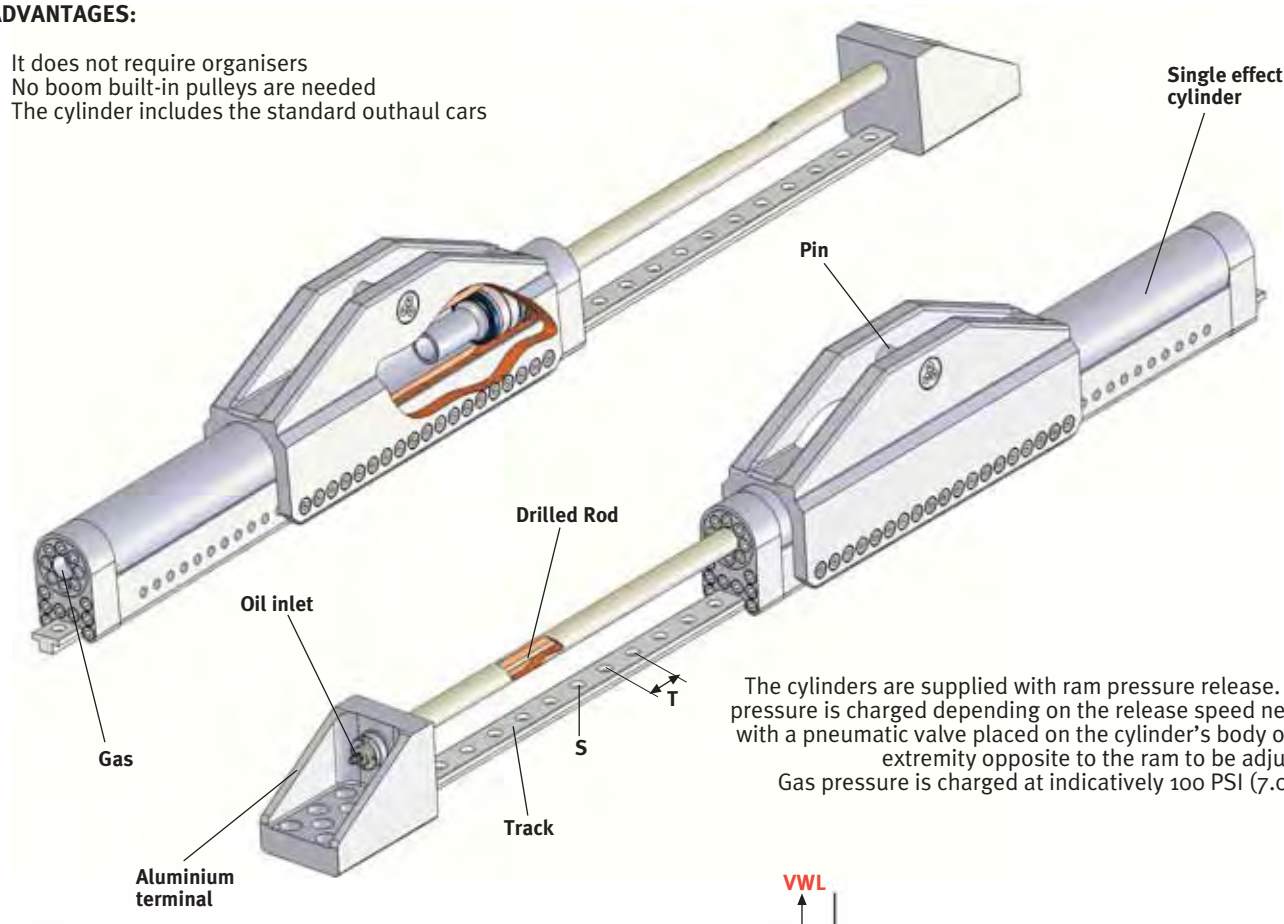
Bamar has come out with a range of single effect cylinders for the outhaul control. It is a complete system, simple to install. It allows for the immediate and safe control of the mainsail base.
It is manufactured with first quality materials made for marine environment. Cylinder body and terminals are made from black hard-cote anodised aluminium; track, ram and pins are in polished stainless steel; sliders are made from high load self-lubricating plastics.

The system is made up by:

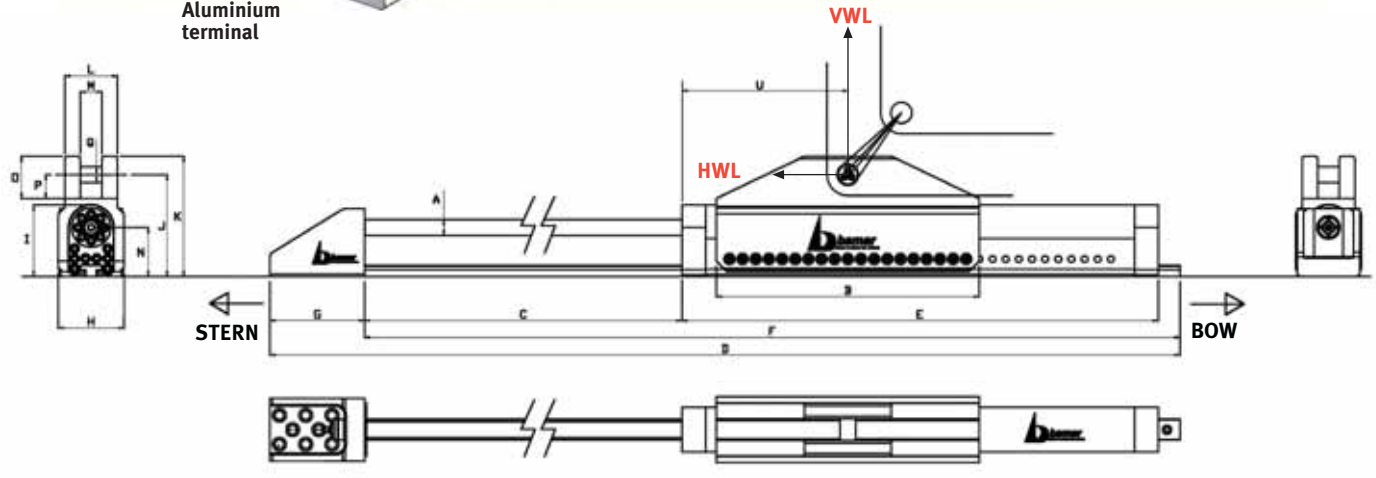
- Cylinder
- Track on which the cylinder slides
- Fork for mainsail clew connection, fitted onto the cylinder's body
- Track / cylinder ram terminal block

ADVANTAGES:

- It does not require organisers
- No boom built-in pulleys are needed
- The cylinder includes the standard outhaul cars



The cylinders are supplied with ram pressure release. Such pressure is charged depending on the release speed needed with a pneumatic valve placed on the cylinder's body on the extremity opposite to the ram to be adjusted.
Gas pressure is charged at indicatively 100 PSI (7.0 Bar)



Rod #	VWL Max vertical working load	HWL Max horizontal working load*	A Rod Ø	B	C cylinder stroke	D	E	F	G	H	I	J	K	L	M	N	O	P	Q Ø	S	T	U	Code
	Kg	Kg	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	
-30	12500	8500	30	500	600	1730	905	1550	180	125	136	193	228	100	41	93	80	45	30	M8	50	315	**104150103000**
-40	12500	12500	40	500	600	1730	905	1550	180	140	155	225	260	100	41	105	85	50	30	M8	50	315	**104150104000**

* Max pressure 5000 PSI (roughly 345 BAR)

We may supply custom lengths and strokes on demand.

For available sizes see Cylinders dimensioning in the specs sheet on page 92 of Catalogue n.10

(E30) HYDRAULIC CYLINDER WITH MECHANICAL LOCK "BCBM"

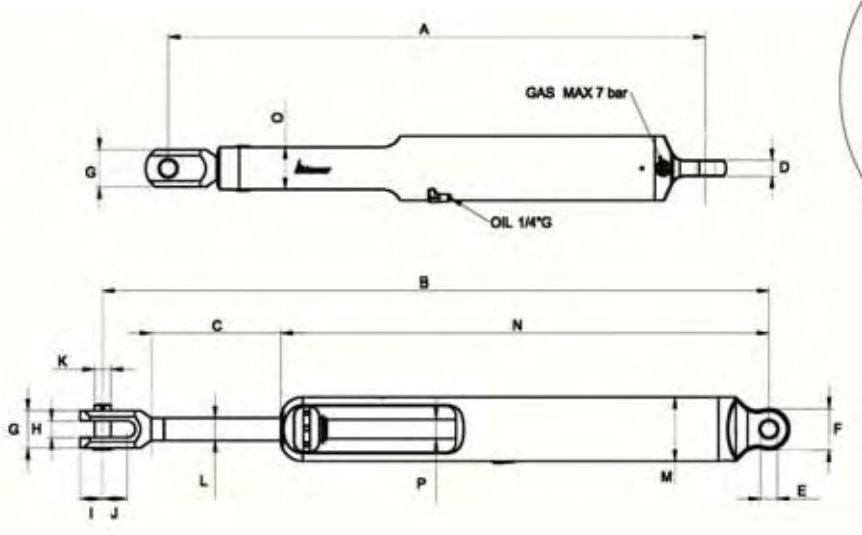
A new line of stay tensioning cylinders supplied with a mechanical lock. They allow for the hydraulic pressure release, while keeping the stay under tension mechanically: fundamental for maximum safety when sailing for long distances. Useful for the control of forestays during races, thanks to their simple and quick adjustment system with ring nut.

The cylinders are supplied with ram pressure release. Such pressure is charged depending on the release speed needed with a pneumatic valve placed on the cylinder's body on the extremity opposite to the ram to be adjusted.

Upon request we may manufacture fork-shaped lower fittings (see page 92 of Catalogue n.10)

s/y "Fetch" Trip 80' - De Cesari/Soleri shipyard - Courtesy by Banks Sails

The cylinder installed on the boat shown in the picture is a version with 200 mm stroke, of which 100 mm dedicated to mast trimming, and 100 mm dedicated to forestay tension adjustment.



35

Rod #	Breaking load	Working load *max	P Rod Ø	A All close	B All open	C Stroke	D	E Ø	F	G	H	I	J	K Ø	L	M Ø	N	O	Code
	Kg	Kg	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	
-40	24.524	15.185	30	832	1032	200	25	26	64	58	26	35	38	25,4	M35	100	756	66	**10410200400**
-60	37.625	18.891	35	880	1080	200	31	32	80	70	32	40	60	31,5	M40	115	778	78	**10410200600**

* Max pressure 5000 PSI (roughly 345 BAR)

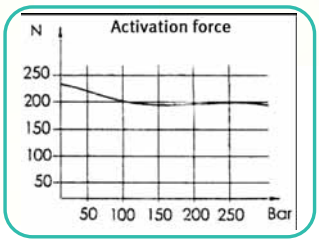
For toggles see page 93 on Catalogue n.10

Upon request we may supply custom lengths and strokes
For available sizes see Cylinders dimensioning in the specs sheet on page 92 of Catalogue n.10

(E96) BAMAR HYDRAULIC ACCESSORIES FOR "BHP"

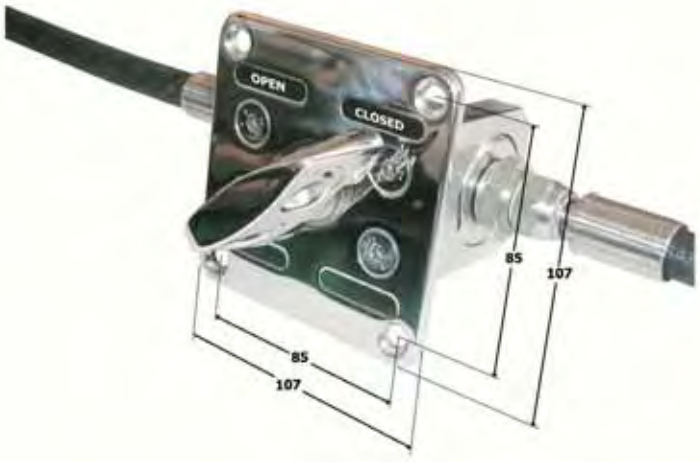
"QUICK RELEASE" SWITCH

BAMAR supplies a quick release valve, to be connected to the hydraulic line of the function to be controlled, which allows for a fast pressure release of the system in case of danger.
It is made up by a valve, to be fitted below deck, connected to an aluminium switch fitted flush-deck.



RELEASE VALVE

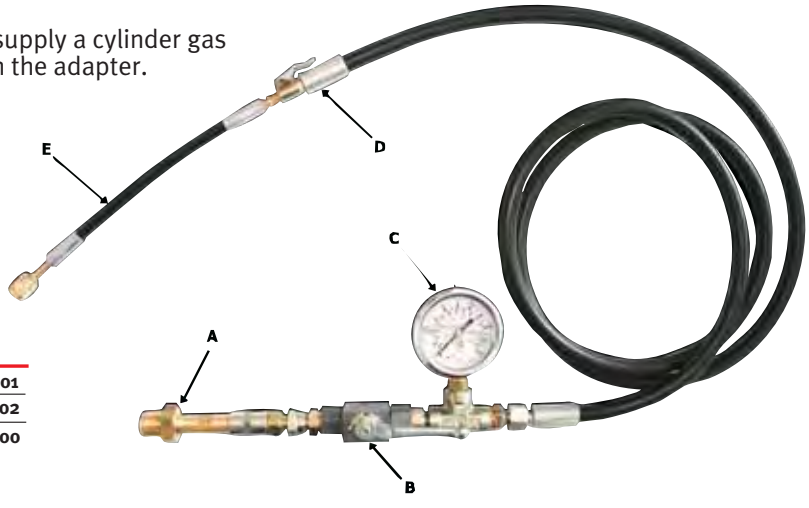
It is a valve for the release of pressure to be connected to the hydraulic line of the function to be controlled
The kit is made up by a valve controlled by a knob(ON/OFF) fitted onto a s.s. panel



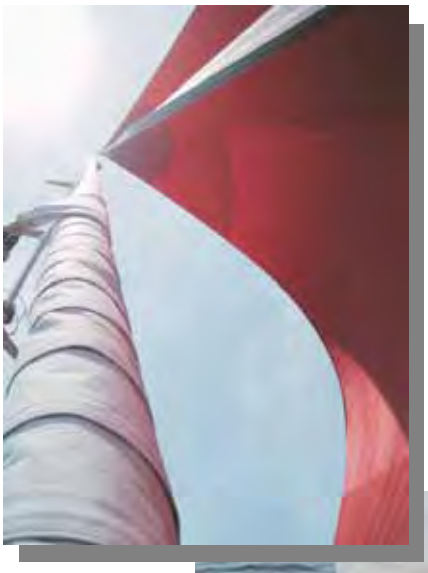
CYLINDER GAS CHARGER WITH PRESSURE GAUGE

To complete the kit of our hydraulic systems we supply a cylinder gas (nitrogen) charger to be fitted onto tanks through the adapter.

The kit is made up by:
A) TANK ADAPTER
B) TAP
C) PRESSURE GAUGE
D) PIN
E) ADAPTER FOR CYLINDER CONNECTION

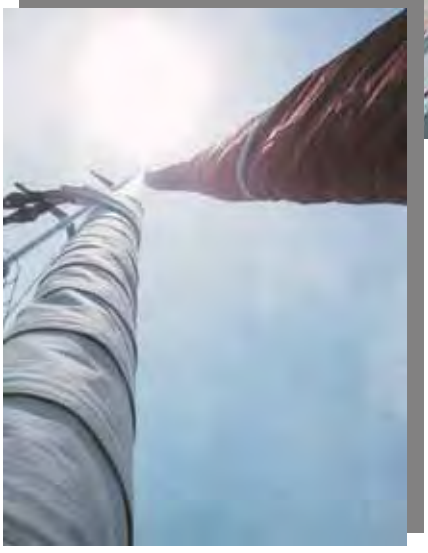


PRODUCT	CODE
Aluminium Quick Release switch	901400001
Release valve on s.s. panel	901400002
Cylinder gas charger with pressure gauge (kit)	904050000



Manual
RLG-CODE 30

41 m stay
650 sq.m. Gennaker
s/y SWAN 100



Courtesy by: Veco NA - USA

(E97) ELECTRONIC PRESSURE MONITORING

Bamar presents a kit to read and display the pressure (Bar) of the single hydraulic functions. The kit may be used both on electric-hydraulic power-packs and hand-pump panels supplied by Bamar or other manufacturers.
ATTENTION: you have to use hydraulic fittings that are compatible with the ones onboard.

Pressure is read by a piezoresistive transmitter which intercepts it, through a special “T” fitting, and then sends the reading to the electronic indicator device.

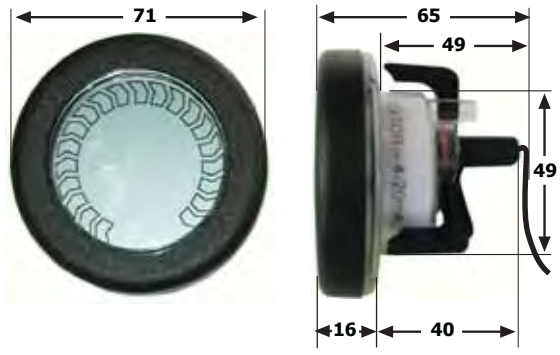
The electronic indicator device displays the value read, both digitally (numeric) and analogically (graphic). The two modes are displayed at the same time.

The instrument is water-tight (IP66) and is made for outdoor use and marine environment.

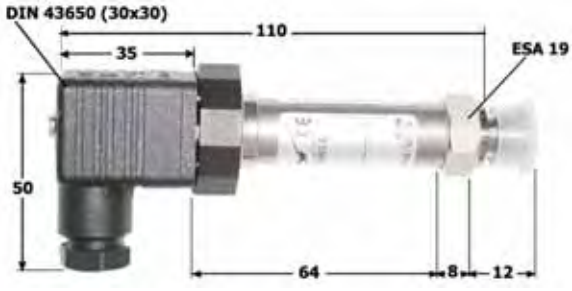
Should the boat be supplied with a monitoring system compatible with the transmitters we supply, it may not need our electronic indicator device.

The instrument (a) is supplied with a fixing support (b), two connection cables with special jack (c), useful for a quick and accurate connection between instrument and battery, or between instrument and piezoresistive transmitter, moreover it is supplied with two locking caps (d) for free inlets.

Electronic indicator dimensions



Piezoresistive transmitter dimensions



TECHNICAL CHARACTERISTICS

Electronic indicator instrument	
Power supply:	8Vdc – 28Vdc
Absorption:	less than 100mA
Working temperature:	-5°C - +80°C
Display:	graphic and numeric
Rear lighting colour:	Green
Protection:	IP65
External diameter:	73 mm
Hole diameter:	50 mm
Thickness (external)	16,5 mm
Depth (embedding)	45 mm
Weight:	78gr

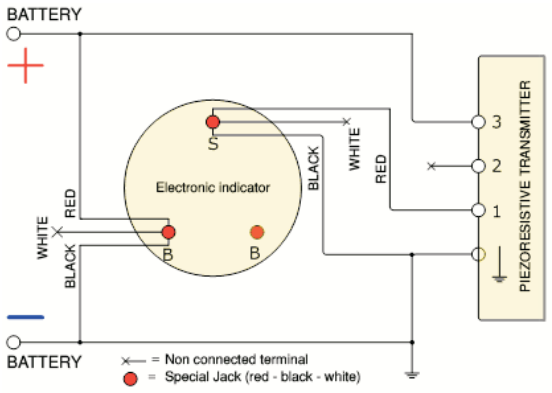
Piezoresistive transmitter	
Power supply:	8Vdc – 28Vdc
Absorption:	max 25mA
Working temperature:	-10°C - +80°C
Compensated temperature:	0°C – 50°C
Hydraulic connection:	G 1/4 gas male
Electric connection:	Connector DIN 43650 (30x30mm)
Protection:	IP65
Vibrations:	20g (5 – 2000 Hz, max. amplitude ± 3 mm)
Shock:	20g (11ms)
Weight:	130gr

HOW TO PLACE AN ORDER

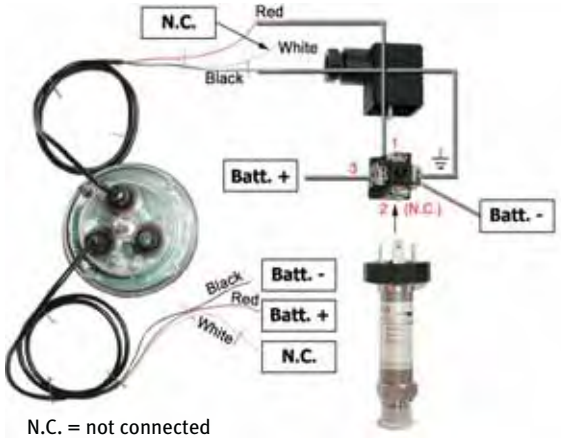
In the table below, you will find the data required for the identification of the accessories needed for the kit composition.

1. determine how many hydraulic functions you want to keep monitored (n.1 electronic indicator for each single function).
2. determine how many transmitters you need (n.1 transmitter for each single monitored hydraulic function).
3. hydraulic fittings: the transmitter has to be connected to the hoses of the hydraulic plant. Therefore, you have to define the kind of fitting needed and the quantity (see hydraulic fittings diagram and following table).

Electric diagram

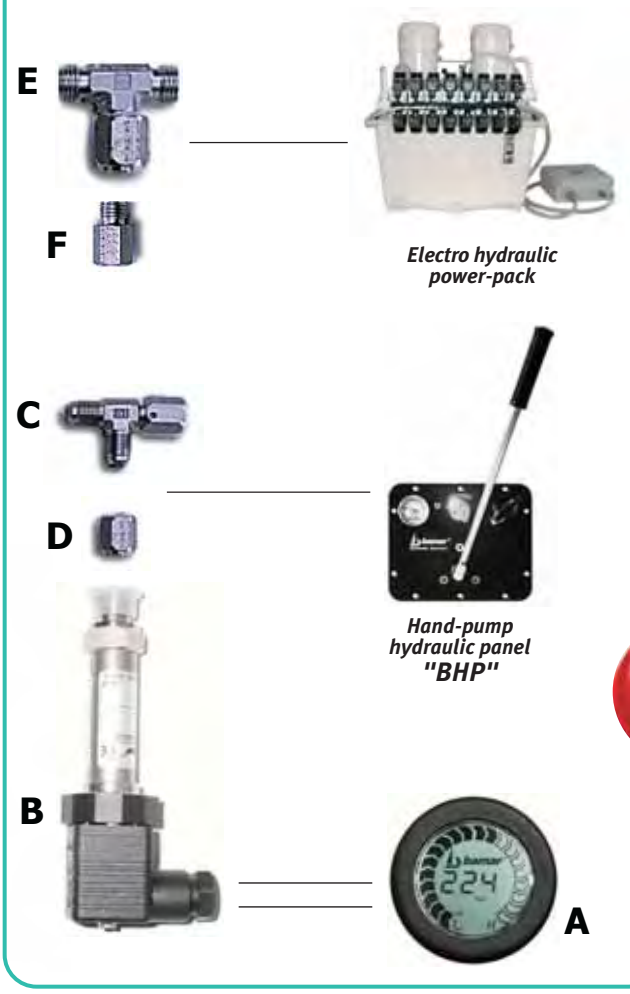


Pratical diagram



N.C. = not connected

Hydraulic fittings diagram



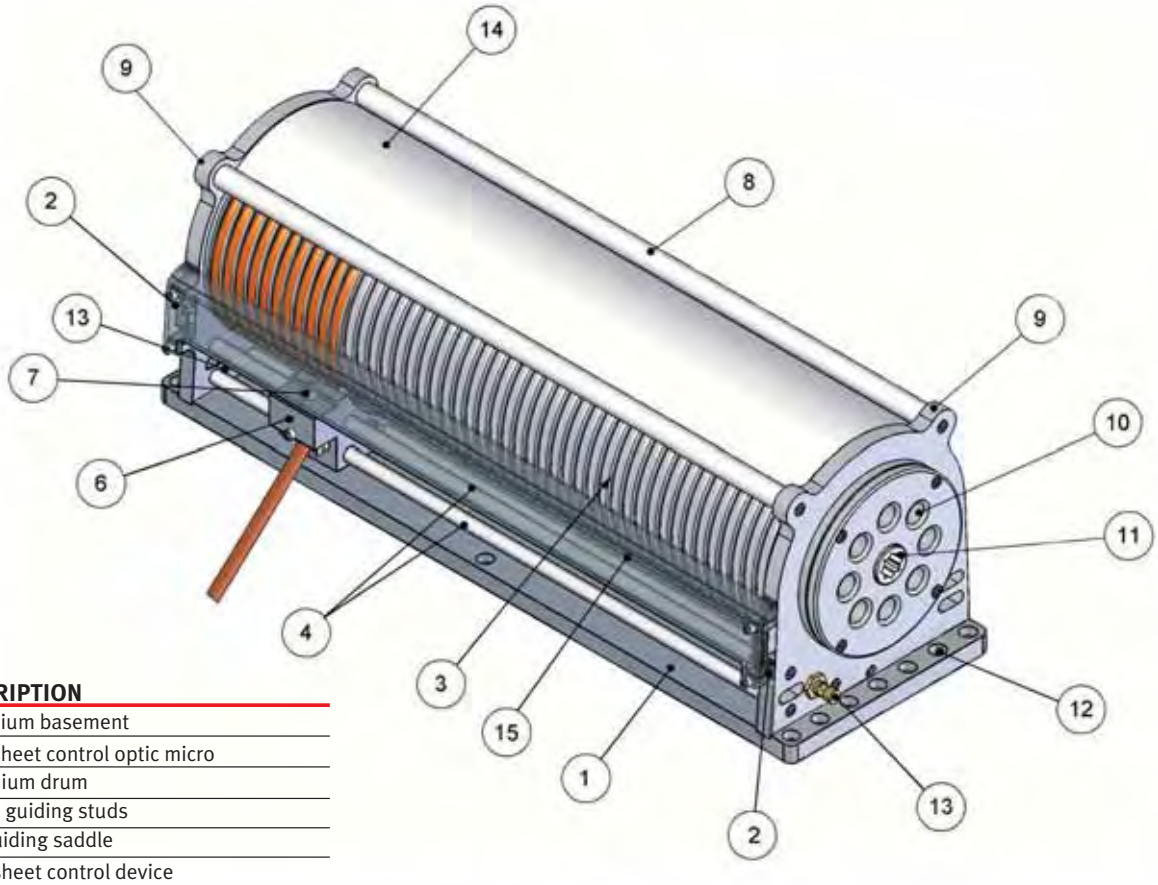
PRODUCT	CODE		7/16" BHP	9/16"	G 1/4"	G 3/8"	G 1/2"	G 3/4"	G 1"
ELECTRONIC INDICATOR BAR 12-24V Ø 73	202961000	A	●	●	●	●	●	●	●
PRESSURE TRANSMITTER 12-24 V K-21R	202730001	B	●	●	●	●	●	●	●
S.S. T F.JIC37-M.JIC37-M.JIC37	202032106	C	●						
S.S. REDUCTION F.JIC37-F.G1/4"	202960000	D	●						
S.S. T F.JIC37-M.JIC37-M.JIC37	202960001	C		●					
S.S. REDUCTION F.JIC37-F.G1/4"	202960002	D		●					
CAD T M.G1/4"-M.G1/4"-F.G1/4"	202960003	E			●				
CAD T M.G3/8"-M.G3/8"-F.G3/8"	202960004	E				●			
S.S. REDUCTION F.G1/4"-M.G3/8"	202960005	F				●			
CAD T M.G1/2"-M.G1/2"-F.G1/2"	202960006	E					●		
S.S. REDUCTION F.G1/4"-M.G1/2"	202960007	F					●		
CAD T M.G3/4"-M.G3/4"-F.G3/4"	202960008	E						●	
S.S. REDUCTION F.G1/4"-M.G3/4"	202960009	F						●	
CAD T M.G1"-M.G1"-F.G1"	202960010	E							●
S.S. REDUCTION F.G1/4"-M.G1"	202960011	F							●

CAD = Cadmium plated steel ; S.S. = Stainless steel

ELECTRONIC INDICATOR SPARES	
LOCKING CAP	202960012
CONNECTION CABLES 25 CM	202960013

(P01-P31) HYDRAULIC "BCWH" AND ELECTRIC "BCWE" CAPTIVE WINCHES

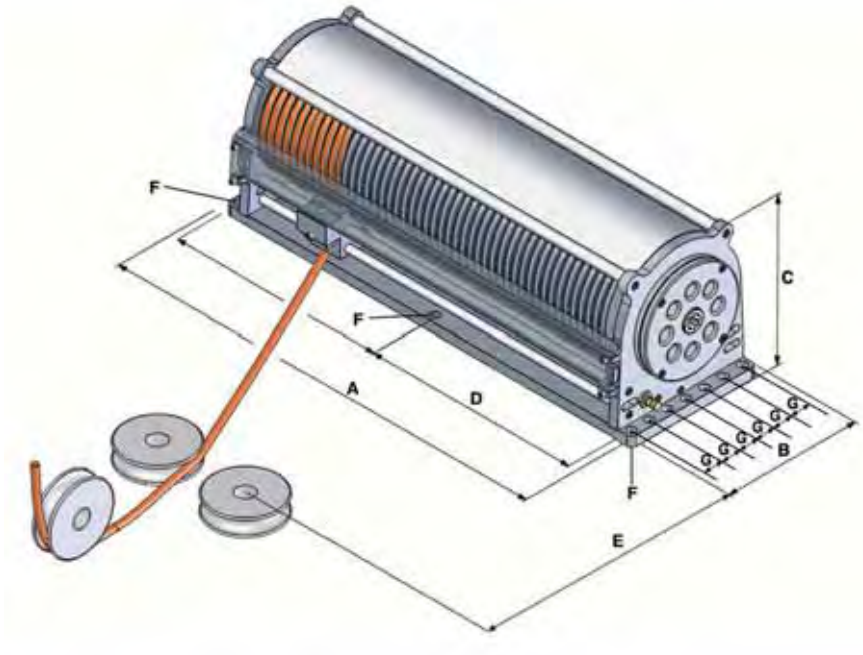
Bamar introduces on the market a new line of line stowing devices for the control of sheets and halyards, now available for sailing yachts from 45' to 65' with dynamic load from 1000 to 2000 kg. These systems are characterized by low weight and reduced overall dimensions. They are supplied with a manual emergency clutch (available only on electric models), working load electronic control, slack sheet sensor, stroke end sensors. Moreover, they may be equipped with pulleys and deck organizers for the sheet passage.



	DESCRIPTION
1)	Aluminium basement
2)	Slack sheet control optic micro
3)	Aluminium drum
4)	Saddle guiding studs
5)	Line guiding saddle
6)	Slack sheet control device
7)	Slack sheet adjustment screw
8)	Structural spacer bars
9)	Aluminium side pillar
10)	Electric or hydraulic motorization
11)	Manual emergency clutch
12)	Captive winch anchoring screws
13)	Saddle limit switch sensor
14)	Protection cowl
15)	Protection optic micro

DIMENSIONS

Model	BCW 1 Medium mm	BCW 2 Small mm	BCW 2 Medium mm
A	710	750	850
B	220	270	270
C	240	290	290
D	342,5	361	411
E	1250	1300	1300
F	M8 x n°.14	M10 x n°.16	M10 x n°.16
G	39	40	40



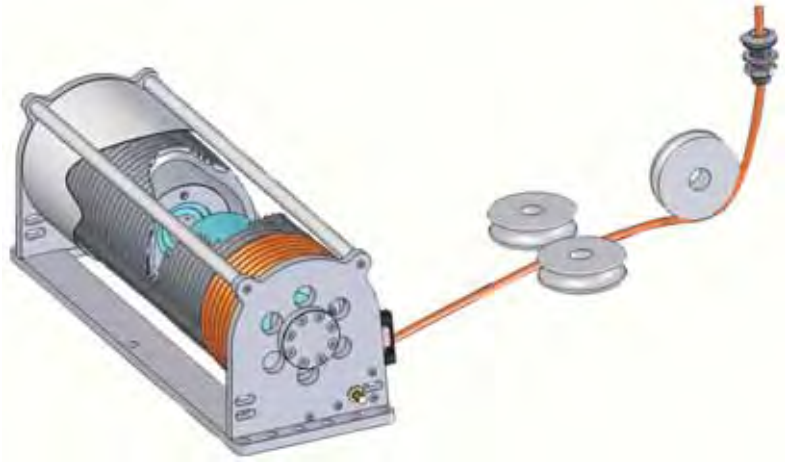
All hydraulic captive winches mentioned above may be supplied with other motor / reduction gear configurations in order to reach other speeds (upon customer's specific demand)

Technical data and drawings are indicative and not binding

HYDRAULIC CAPTIVE WINCH TECHNICAL DATA		BCWH 1 Medium	BCWH 2 Small	BCWH 2 Medium
CODE		**121201210024**	**121202112025**	**121202212030**
Max dynamic pull	Kg	1000	2000	2000
Max static pull	Kg	2000	4000	4000
Max line diameter	mm	10	12	12
Line stowing capacity	m	24	25	30
Line speed (oil flow 20 lt/min)	m/min	18	10	10
Weight	Kg	65	95	100
Continuous pressure	Bar	100	100	100
Max pressure	Bar	140	140	140
Max oil flow	l/min	25	25	25

ELECTRIC CAPTIVE WINCH TECHNICAL DATA		BCWE 1 Medium	BCWE 2 Small	BCWE 2 Medium
CODE	**12 V**	**121101210124**	**121102112125**	**121102212130**
	24 V	**121101210224**	**121102112225**	**121102212230**
Max dynamic pull	Kg	1000	2000	2000
Max static pull	Kg	2000	4000	4000
Max line diameter	mm	10	12	12
Line stowing capacity	m	24	25	30
Line speed	m/min	15	15	15
Weight	Kg	65	95	100
Electric motor power	Watt	1500	2000	2000
Electric supply	V	24	24	24
Nominal absorption	Amp	75	100	100
Duty	S2 - min	15	15	15

We may supply systems with higher pulling loads on demand.



BCWE

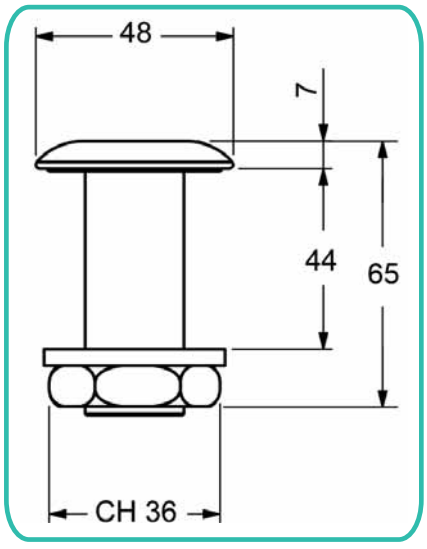
(P19-P39) ACCESSORIES FOR "BCWH" AND "BCWE"

S.S. THROUGH-DECK FITTING FOR "ROPE"

Flush deck through-deck fitting for the passage of sheets and halyards. It reduces weights and overall dimensions above deck, as it does not require the use of pay off pulleys.

Moreover, it reduces the passage of water below deck, thanks both to the seal used and the hole adapted to the rope diameter.

Ideal for all running rigging stowed below deck.



PRODUCT	CODE
S.S. THROUGH-DECK FITTING FOR Ø 10 MM ROPE BCW	**80100158**
S.S. THROUGH-DECK FITTING FOR Ø 12 MM ROPE BCW	**80100159**

HOLMENKOL
ADVANCED PROTECTION

NANO

High tech products for races and sport

license to win®

The Holmenkol line includes special products and fillers able to offer the maximum protection and functionality. Very small nanoparticles, with a diameter 100 times lower than that of a human hair, make Holmenkol products the most technologically evolved on maintenance and materials-care field. Discover the advantages of Nano Technology.

SPORT POLISH + clean

Polish for fiberglass and metals

A new-generation polish based on Nano Technologies, ideal for gelcoat, resin, carbon, and metals. The "intelligent" coating (around 1/100.000 mm thick) builds an extremely long-term surface against oils, dirt, dust and acids. A very strong surface against abrasives that reduces that cuts the maintenance to the minimum and acts as an all-in-one wax and polish. For hulls, decks, hardware, masts and booms.
It is suitable for cleaning and protecting plastic, fibreglass, gelcoat and metallic surfaces over the water-line.
Pre-treatment for the application of Aquaspeed.
Cleans, seals and protects the treated surface even against the aging processes and UV-rays.

cod. 25170 - 250 ml
cod. 25179 - 25 ml

LUBEnSPEED + glide

Lubricating

A lubricating based on Nano Technologies which builds "intelligent surfaces" against dirt, salinity and water on metallic and synthetic materials such as gelcoat, fibreglass, and more. Its lubricating properties makes it effective where other products fail. For deck equipment, masts, booms, grooves, tracks and cars. It reduces the surface friction.
Here are some possible applications: on mast grooves, on foresail furler, on car, on the bowsprit, on mast bottom and head, on boom parrel, on blocks and hinges, on rudder rotation mechanisms. And again, on anchor chain and more.

cod. 22410 - 75 ml

AQUA SPEED + glide

Quick works treatment

Builds a low-energy surface under the waterline and considerably decreases the friction. Laboratory tests showed a friction reduction up to 45%. It's a product that also eliminates the dirt and the need for protections, keeping the surfaces clean, powerful and quick.
Applied on the bottom of quick boats (skiffs, multihulls) decreases the friction factor up to 40% compared to non treated surfaces.

cod. 25190 - 250 ml

SEALnGLIDE + glaze

Sails treatment

A product based on Nano Technology, builds a surface repellent to water and dirt. It increases the performances and considerably decreases the friction on sail tissues. Thanks to its great hydrophobicity, SEALnGLIDE + glaze makes sails smoother, more waterproof, reducing the possibility of tearing and helping the manoeuvres. It is fungicide, so it is suitable for canvas.

cod. 25200 - 100 ml
cod. 25201 - 1000 ml

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

°C = (°F - 32) / 1,8	**-30**	**-25**	**-20**	**-15**	**-10**	**-5**	**0**	**5**	**10**	**15**	**20**	**25**	**30**	**35**	**40**
°F = (C°x1,8) + 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	
mm		**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	
mm		**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

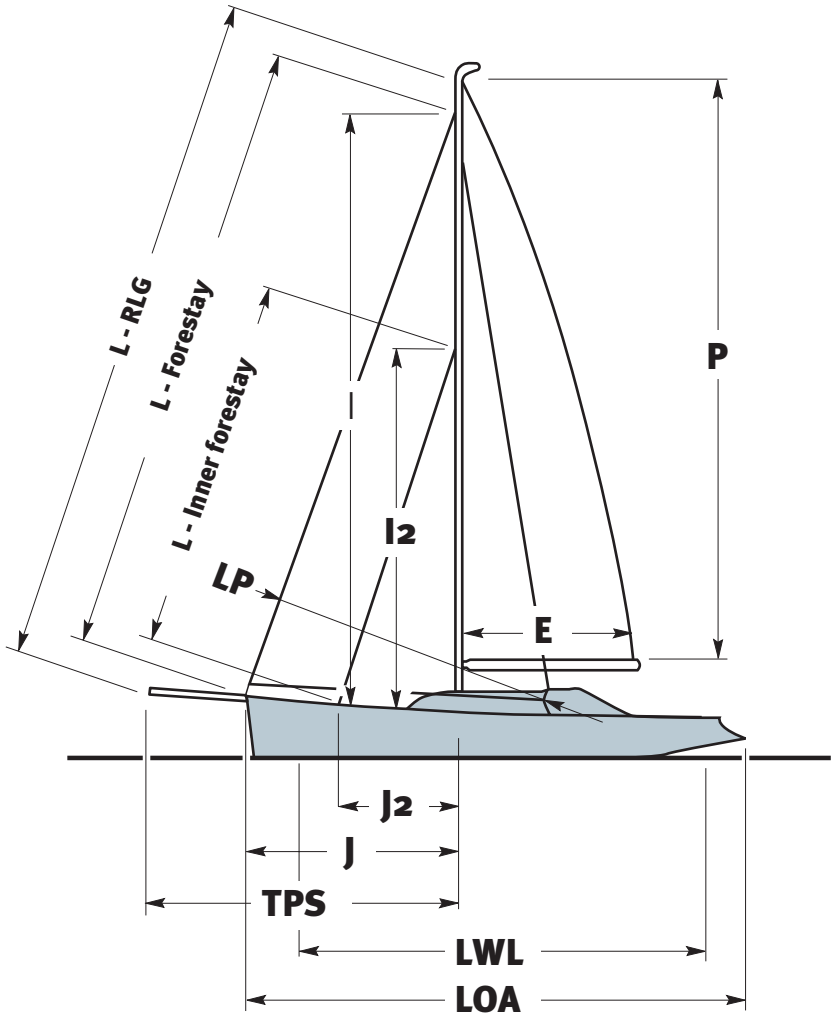
EQUIVALENT ROD SIZE N-50 ROD	KEVLAR SIZE	COATED KEVLAR Ø		MIN. BREAKING LOAD		ROD WEIGHT	
		in	mm	lb	kg	lb/ft	g/m
-4	0,220	0,22	5,6	6.460	2.930	0,022	32
-6	0,250	0,25	6,4	8.350	3.790	0,028	42
-8	0,312	0,31	7,9	13.000	5.900	0,048	72
-10	0,312	0,31	7,9	13.000	5.900	0,048	72
-12	0,375	0,38	9,5	18.800	8.530	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

LINE Ø mm	T90 POLYESTER HALYARD		GM112 POLYESTER SHEET		SK75 CLASSIC DYNEEMA		SK75 RACE DYNEEMA	
	BREAKING LOAD	LINEAR WEIGHT	BREAKING LOAD	LINEAR WEIGHT	BREAKING LOAD	LINEAR WEIGHT	BREAKING LOAD	LINEAR WEIGHT
	kg	g/m	kg	g/m	kg	g/m	kg	g/m
3			350	8				
4			540	13			975	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.**



NOTE

NOTE

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