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Softrig
TEXTILE RIGGING CABLES

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UK

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Softrig: high tech rigging solutions

Thanks to the use of innovative, high module fibres such as PBO-Zylon®, aramidic fibres and Dyneema®, textile rigging, nowadays, is one of the projecting areas in the field of yacht designing where you can gain a lot in terms of lightness and performance.

Softrig responds to this demand by planning, producing and testing complete, high-tech rigging textile solutions, by conveying into their projects the experience of renowned professionals, maturated in years of application to the sector of rigging and production of highly-performing lines/hawsers/ ropes, made with high-tech fibres.

A vanguard technology and a company workflow optimised to meet personalised requirements, make Softrig an emerging reality in the fibre rigging sector.

The operational premises at Carasco, province of Genoa - where the cables are made and tested with a 150 ton testing bed -, are located only three km from the harbour of Lavagna, a strategic point for Italian yachting, actually central if compared with the countries looking onto the Mediterranean Sea. Softrig seek continual improvement in their rigging systems, to guarantee products that perform better and better, and are ever more safer.

The availability of an internal, testing bed and of all the most advanced technologies is fundamental in allowing for the projecting and development of complete rigging solutions, demanded by both the regatta and cruising yacht project designers, as well as by the best skippers of regatta mono-hulls and multi-hulls.

For a few years now, Softrig have been carrying out tests on very highly performing boats; thanks to the acquisition of the data deriving from such exacting navigation, taking place under all sea meteorological conditions, they can guarantee absolutely reliable rigging solutions.

The manufacturing principles underlying Softrig cables

The continual processing of multi-filament, high module textile fibres, represents the technologically most advanced solution worldwide for the production of textile fibre cables.

The manufacturing principle underlying Softrig's cables -which is called "sling"- is based on the continual winding of the fibre between two fixed points placed at the distance one wishes. This special formation, aptly controlled by sophisticated machinery, allows you to attain the highest elongation modules, and exceptional breakage loads.

The internal fibre, which is apt to guarantee the unique performance of the cables, is protected by three layers, each having a different composition and density.

The innermost layer isolates the cables, preventing either humidity, water, salt or other external agents from penetrating therein.

The second layer protects the fibre from its exposition to ultraviolet rays.

The outermost layer is composed of a plaited covering - to be chosen amongst Dyneema®, aramidic fibres and polyester HT (according to what it is going to be used for) -, which protects the cable from whatever mechanical action.

During the projecting stages of the textile rigging, the elongation datum of Nitronic 50 is kept as the reference point. Given the stretching features of the PBO fibre, up to 80% reductions in the overall weight of the sailing equipment can be attained, with an approx. 55% increase in the cable load breakage; this leads to a slight increase in cable diameter, but also to an important increase in security factors.

For the project designer of a yacht, the important rigging lightness gain implies the possibility of improving the pricking-up moment; as a result, weight on the keel can be reduced -with relative diminution in the boat's overall displacement-, or the surface of the sails can be extended, thus increasing the power of the yacht.

Moreover, given the difference in vertical distance of the centres of gravity of the rigging and of the ballast, the weight reduction ratio is about 1:6, namely, every 10 kg saved on rigging implies a 60 kg saving of on the weight of the ballast; such lightening moreover, brings about a higher concentration of the weights, with a remarkable diminution in both pitching and rolling.

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Softrig's products: a complete range

Softrig project and manufacture complete systems of rigging, stays, backstays check-stays and runners and produce directly the cables employed.
A special anti-torsion cable has also been set up for prow sails of the Code 0, drifter and gennaker types, that can be used on all the new winding systems.

The offer is completed with the availability of a complete set of pin and fastening terminals, whatever the load and the cable diameter, made in stainless steel 316, in special 17-4 PH steel or in 5-degree titanium.
Moreover, Softrig can respond promptly to whatever personalisation request concerning rigging, by projecting and making internally customised components for all the fitting.

Comparation between PBO cables and Nitronic 50

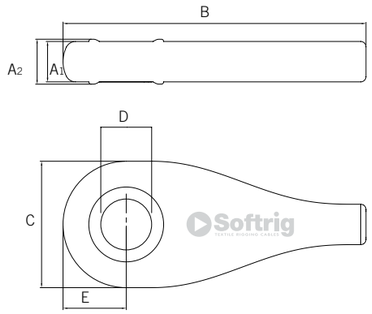
PBO CABLES	B.L. [Kg]	Ø [mm]	STRETCH EQUIVALENT DASH	N 50 B.L. [Kg]	N 50 Ø [mm]
PB 075	7500	8.0	**-10**	4670	6.35
PB 092	9200	9.4	**-12**	5670	7.14
PB 103	10360	9.6	**-15**	6460	7.52
PB 129	12950	10.5	**-17**	7940	8.38
PB 173	17360	11.7	**-22**	10200	9.53
PB 224	22410	13.6	**-30**	13600	11.10
PB 281	28150	15.2	**-40**	17200	12.70
PB 353	35350	17.1	**-48**	21800	14.27
PB 496	49610	19.5	**-60**	27200	16.76

N.B.: Indicative weights and diameters

Breaking loads

PBO CABLES	B.L. [Kg]	W.L. [Kg]	Ø [mm]	PESO [mt/Kg]
PB 05	5000	1250	6.9	0.059
PB 10	10000	2500	9.5	0.085
PB 15	15000	3750	11.0	0.119
PB 20	20000	5000	12.3	0.148
PB 25	25000	6250	14.0	0.176
PB 30	30000	7500	15.2	0.205
PB 35	35000	8500	16.9	0.249
PB 40	40000	10000	17.9	0.290
PB 45	45000	11250	18.9	0.325
PB 50	50000	12500	19.7	0.379

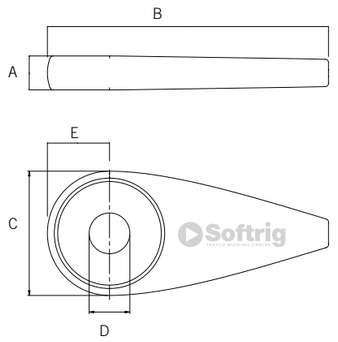
Others dimensions and characteristics on request
N.B.: Indicative weights and diameters
B.L.: Breaking Load
W.L.: Max Working Load



Terminal dimensions - Hard cover

TERMINAL CODE HARD COVER PIN	A1 [mm]	B [mm]	C [mm]	D [mm]	E [mm]
A	12,5	77,5	39	hole on demand	19,5
B	14,5	106,2	52	hole on demand	26
C	17	124,3	60	hole on demand	30
D	20	142,5	67	hole on demand	33,5
E	23	172,5	76,6	hole on demand	38,3
F	27	202,5	84,4	hole on demand	42,2

TERMINAL CODE HARD COVER LASH	A2 [mm]	B [mm]	C [mm]	D [mm]	E [mm]
0	15,5	77,5	39	11	19,5
1	17,5	106,2	52	17	26
2	21	124,3	60	21	30
3	25	142,5	67	24	33,5
4	28	172,5	76,6	26	38,3
5	33	202,5	84,4	28	42,2



Terminal dimensions - Soft cover

TERMINAL CODE SOFT COVER PIN	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
ZA	9	67,3	34,4	hole on demand	16
ZB	11	84,2	44	hole on demand	22
ZC	14,5	111,3	57,1	hole on demand	28
ZD	20	160,5	73,1	hole on demand	34

TERMINAL CODE SOFT COVER LASH	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
Z0	9	67,3	34,4	11	16
Z1	11	84,2	44	17	22
Z2	14,5	111,3	57,1	24	28
Z3	20	160,5	73,1	28	34

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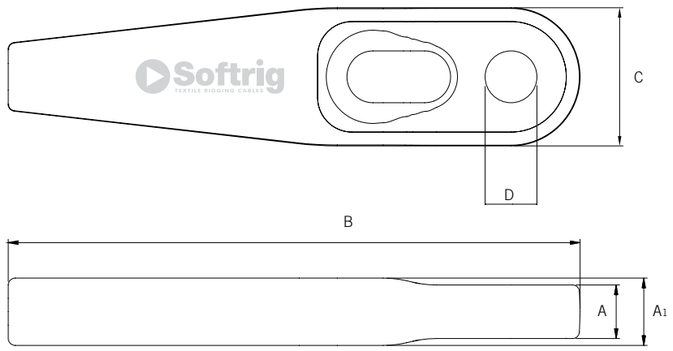
NO-TORSION cables

A complete range of no-torsion cables has been studied and got ready for fly sails, type code zero, drifter and gennaker, which can be used on all new furling systems.

NO-TORSION cables are available in four sizes, in order to satisfy all loading implications for any type of boats.
They are custom built, according to the specific length of the sail (data given by the sail-maker).

TERMINAL CODE	A		B	C	D	PBO
NO TORSION CABLE	[mm]		[mm]	[mm]	[mm]	BL
	A	A1			(max pin)	(Kg)
AT1	10	14	110	28	10	6000
AT2	15,5	19,5	165,6	40	15	10000
AT3	18,5	24,5	235	54	25	20000
AT4	Others dimensions and characteristics on request					



Protection of the cables

In order to protect Softrig cables, a vast range of braided socks is available to choose on the basis of the use and the position of the cable on board.
Distinct materials can be used for the construction of the socks as to guarantee more levels of protection and mechanical resistance.
All braided covers, if necessary, can be impregnated with a special coloured polyurethane coating
Which protects the fibers from UV rays and improves abrasion resistance.

Protection braided socks can be made with the following fibers (materials):

PBO - Zylon®
Vectran®
Aramide (Twaron®)
Dyneema®
Polyestere HT Black

The SoftRig technical department is at your disposal to indicate and suggest the most appropriate material for the construction of your cable.

Maintenance of cables

Matchless though the set of advantages of the high-tech textile cables be, we must emphasize that cables require some simple yet fundamental contrivances if they are to be kept well.

That is why Softrig have developed and optimized the protections applicable to their cables - which are protected by as many as three layers - and by especially taking care of the hidden spots even inside the terminals, thus being able to guarantee that their products last long.

The care that Softrig's specialised staff devotes to the finish of their cables and terminals before they are delivered already ensures an optimal quality level, which is going to satisfy years of use out at sea. To guarantee cable safety, however, we suggest a normal, yet regular, visual inspection, by the user, above all in the areas that are subject to rubbing with other boat components.

The cables employed for rigging, moreover, endure a lot of stress - coming as torsion, elongation, compression, rubbing, temperature variations - and are subject to the combined action of the sun, of water, salt, atmospheric agents, and chemical ones as well. Adequate, scheduled maintenance is therefore necessary if you wish to keep any of the boat components efficient; that is why Softrig's technical office perfects the maintenance plans of their cables based on a few specifications regarding the type of boat, the kind of use and the forecasted use (namely the number of miles one is going to travel).

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