
ART

Asymmetric
Rib Technology



2-speed Self-tailing winches

S30 S40 S46 S52 S60 S66

3-speed Electric winches

E40 E46 E52 E60 E66

POWERED BY  **SELBus®**

 **SELDÉN**



10.8 11.5
145° 142°
196 18.2
-102 100°

J3-A

SELDÉN

B&G
11.6 142

The mission

Develop a winch with a grip strong enough that the entire drum is not filled with turns. It must interact with the self-tailer to allow a slack sheet to be pulled easily with the line in the self-tailer. When releasing the sheet, it must slide out gently and silently. Sailors must be able to trust the grip and the release even under the hardest conditions. The surface of the drum must be kind to the line. The winch must be easy to install and to service. Both manual and electric versions with the manual winches being easy to upgrade to electric operation.

The solution

ART

Asymmetric Rib Technology

The perceived feeling of how a winch performs is very much based on the design of the drum. Preferences are very individual and depend on what function a specific winch is used for. A big challenge for any producer of winches.

Our conclusion after years of research is that the relationship between grip and release is critical. Two or three turns should provide enough grip and when releasing the line, you want it to slide out smoothly. Pulling the slack on an unloaded sheet should be possible without the risk of riding turns.



The drums we are using for our new manual and electric winches are forged and machined hard anodised aluminium with vertical ribs located in an asymmetric pattern. Any line under load will become slightly dented where it rests over a rib and if all ribs were located symmetrically, all dents would simultaneously jump to the next rib when releasing the line. And the next one, and the next one...

Ribs placed asymmetrical provide a strong grip and a harmonious release. This is ART.



S-SERIES

2-speed self-tailing winches

A new work horse, already praised by both racing and cruising sailors after two years of sea trials. The interaction between the ART drum and the self-tailer strikes the perfect balance of grip and function.



Tacking and gybing made easy

The S-series simplifies the manoeuvre of tacking and makes the handling of a highly loaded sheet safer and quicker. The grip on the winch drum combined with a unique self-tailer enables the trimmer to pull the slack out of the sheet with the line sitting in the self-tailer and with the winch handle in position. A great advantage for the racing sailor who can pre-load the sheet into the self-tailer of the windward winch prior to tacking and then sheet home and set the trim of the jib instantly on the new tack. Simply pull in the slack and turn the handle a turn or two to get full tension. The cruising sailor will appreciate simpler and safer manoeuvres by not having to hand hold a tensioned sheet whilst trying to load it into the self-tailer and searching around for the winch handle.

Technical specification

						Power Ratio		
Art. No	Description	Base diameter, ø mm	Height, mm	Weight, kg	Line size, ø mm	High gear	Low gear	Line entry height, mm
475-130-10	S30	139	150	2,9	8-12	12:1	30:1	60
475-140-10	S40	152	162	3,5		13:1	40:1	63
475-146-10	S46	184	186	5,8	8-14		15:1	46:1
475-152-10	S52					52:1		
475-160-10	S60	245	239	13	8-16	18:1	60:1	98
475-166-10	S66			13,1		20:1	66:1	

	Safe working load, (SWL, kN)	Type of bearings	Fasteners (countersunk screws)
S30	8,4	Delrin® roller bearing + plain bearing	M6
S40	11,2		Double Delrin® roller bearings
S46	12,9		
S52	14,6	M10	
S60	16,8		
S66	18,5		



Replace your old winches without drilling new holes in your boat

Optional adaptor plates with threaded and anodised holes for the Seldén S-winch are available. Use your old winch as a template to mark positions of your existing holes, drill, countersink the holes, apply grease to the bolts and fit the adaptor plate to deck. The Seldén winch fits on top with fasteners included in the kit. The plate is hard anodised black aluminium of the same diameter as the S-winch you are installing.

Art. No.	Adaptor plate for S-winch including fasteners	Thickness, mm
473-399-10	S30	7
473-499-10	S40	9
473-599-10	S46/S52	
473-699-10	S60/S66	13



Race GRIP

The patented Race GRIP handle is designed with the most logical location of the locking mechanism - on the sides! Long release levers on the sides of the handle are pushed in as you grab the handle. This will turn the locking plate so that the handle can be engaged and disengaged rapidly.



Watch Race GRIP
video



Standard

The standard handles are featuring a thumb-switch and are available in lengths of 8 or 10 inches. Rigid crank arm and a low friction knob get the job done efficiently.



Art. No.	Description	Length, inch / mm
474-501-10	Race GRIP	10 / 255
474-401-10		8 / 205
474-301-10	Standard	10 / 255
474-201-10		8 / 205



E-SERIES

Operates with three velocities for precise and efficient sail handling. The high-speed mode is an electric overdrive and perfect when pulling the slack of for instance a long and unloaded genoa or Code 0 sheet.

The Electric winches are manual 2-speed winches fitted to a SEL-Bus driven motor pack allowing for a third high-speed velocity. The back-up solution, in case you run out of power, is to put a winch handle in the socket and grind. This concept also allows you to upgrade your manual winches to electric at a later stage. The motor packs are powered up by Seldén's Power Supply Unit converting 12/24V to 42V which makes for an efficient and compact design of the motor assembly and thin 6 mm² power cables.



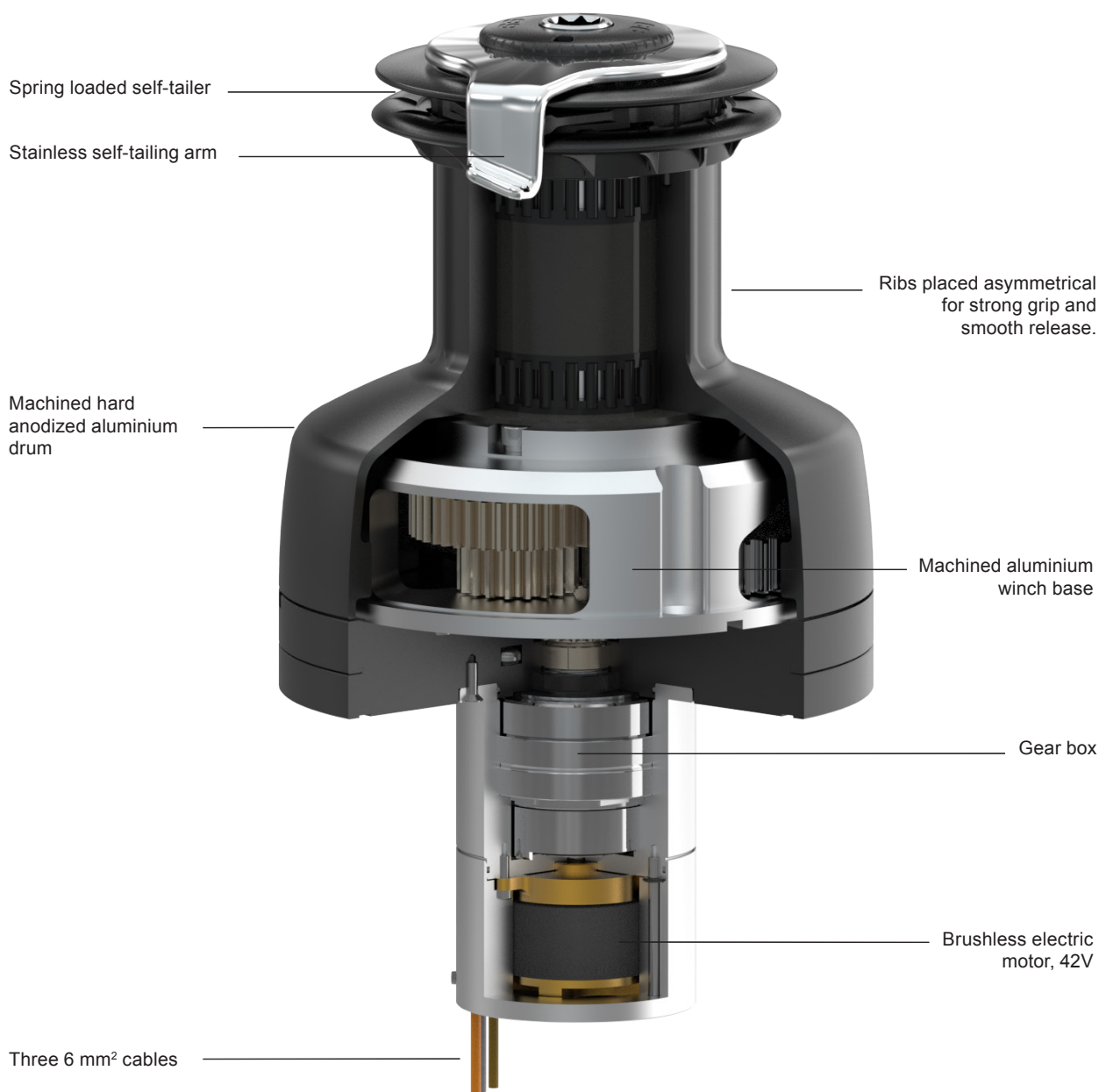
Technical specification

	Power ratio, manual operation		Protrusion below deck including cable clearance, mm	Motor/gearbox diameter, ø mm	Power consumption, W	Cable size, mm ²	Voltage, V
E40	13:1	40:1	145	99	1000	6	42
E46/E52	13:1/15:1	46:1/52:1					
E60/E66	18:1/20:1	60:1/66:1					

	Safe working load (SWL), kN	Electric Cut-off load (ECL), kN	Max. line speed, m/min	Fasteners, S-winch to motor pack (included)	Fasteners, motor pack to boat. Not included. Use Socket head (HEX)
E40	11,2	6,7	54	M8	5 pcs M6
E46/E52	12,9/14,6	9,7	40	M8	5 pcs M8
E60/E66	16,8/18,5	14,7	28	M10	5 pcs M10

E-SERIES

Watch the Self-tailing
in action at full speed



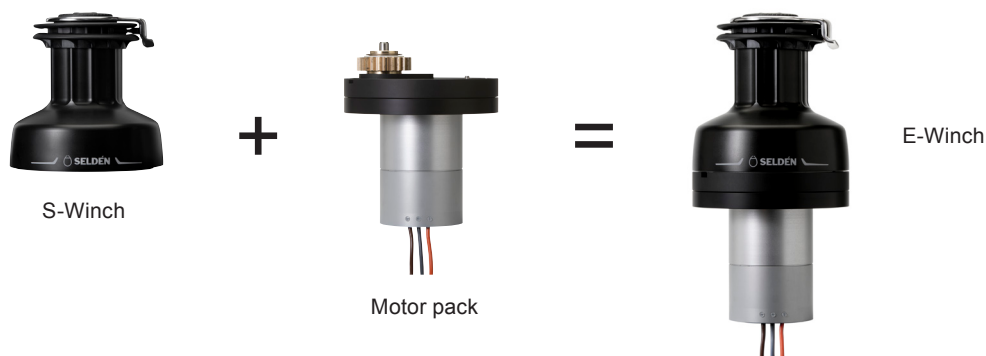
Ordering your Seldén E-series winch

Art. No (excl. SEL-Bus)	Description	Base diameter, ø mm	Drum diameter, ø mm	Height, mm	Line entry height, mm	Weight, kg	Line size, ø mm
475-740-10	E40	152	75	202	103	9,9	8-12
475-746-10	E46	184	90	226	115	13,2	8-14
475-752-10	E52						
475-760-10	E60	245	120	279	138	23,3	8-16
475-766-10	E66						

Contact an authorized Seldén dealer for a quote including SEL-Bus and Power Supply Unit.
Technical information and part numbers are available at www.seldenmast.com/technical information.

Electric upgrades for S-winch

If you wish to upgrade your S-winch to electric drive, just install the motor pack and fit your existing winch on top of it.



The motor packs are powered by Seldén's SEL-Bus system and a Power Supply Unit converting 12/24V to 42V allowing for an efficient and compact design.

Art. No.	Electric motor pack
473-430-10	Upgrades S40 to electric drive
473-530-10	Upgrades S46/S52 to electric drive
473-630-10	Upgrades S60/S66 to electric drive

POWERED BY
SELBus®

Synchronized Main Furling – intelligence onboard

A unique interplay between the electric winch and Seldén's electric furling mast forms the ingenious Synchronized Main Furling (SMF). Press one button only and the winch will tension the outhaul simultaneously as the mast motor unfurls the sail from the mast.



DIMENSIONING GUIDE



Using the Dimensioning Guides

The winch dimensioning guides are based on the relationship between the sheet load, the winch gearing, and the effort required at the winch handle. They indicate which winch size is appropriate for a given application based on how much effort is reasonable for a person to apply when trimming the line.

The dimensioning guides are therefore not based on the Safe Working Load (SWL) of the winch. SWL is a separate safety-related limitation and must be considered independently, particularly for static applications.

E-winches, when operated under electric power, can generate higher line loads than manually operated S-winches of the same size. Consequently, for the same boat and application, the E-winch dimensioning guide may recommend a smaller winch size than the corresponding S-winch dimensioning guide.

The dimensioning guides divide applications into two categories, depending on how the winch is used.

Dynamic applications

For sheets, where the sail must be trimmable throughout the full range of expected sheet loads, the selected winch should provide sufficient mechanical advantage to allow the sheet to be trimmed at the maximum calculated sheet load.

In other words, the dimensioning is based on the relationship between the maximum sheet load and the effort required at a 10" winch handle. A larger winch generally provides greater mechanical advantage, reducing the effort required at the handle, while a smaller winch may require greater effort but can provide faster line retrieval.

Static applications

For halyards, outhauls and spinnaker guys, where the line is normally not trimmed while subjected to the maximum calculated load, the winch is dimensioned differently.

The winch should be capable of generating 75% of the calculated line load based on the available mechanical advantage and a reasonable effort at the winch handle.

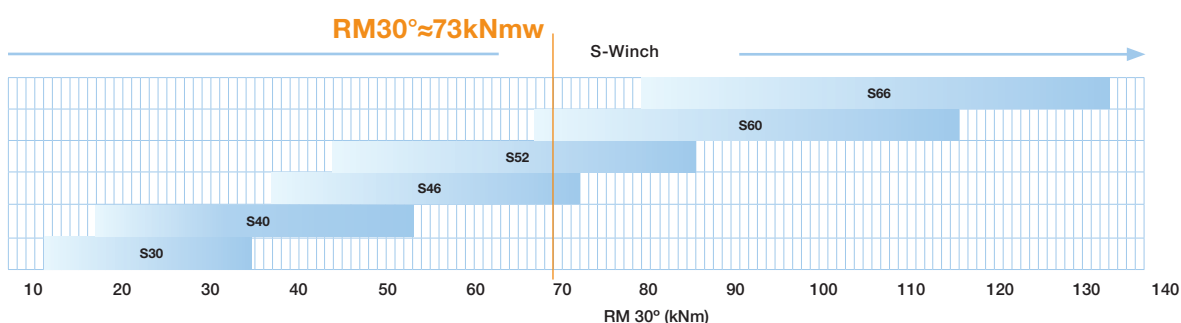
In addition, the Safe Working Load (SWL) of the winch must be equal to or greater than 100% of the calculated line load.

Example

The following example shows how to use the dimensioning guide to select a manually operated S-winch for a jib/genoa sheet on a fractional-rigged boat with a righting moment at 30° heel angle (RM30°) of **73 kNm**.

Locate **RM30° = 73 kNm** on the X-axis and draw a vertical line upwards through the graph.

JIB/GENOA SHEET - FRACTIONAL RIG



The vertical line intersects the applicable range for **S46, S52 and S60**, indicating that all three winch sizes are suitable for this boat and application. The final choice depends on the customer's requirements and the desired balance between trimming speed and the effort required at the winch handle.

Selecting an **S46**, with the boat's RM close to the upper limit of the winch's recommended range, means that more effort will be required at the winch handle when the sheet load is close to its maximum. However, the smaller winch provides faster line retrieval.

Selecting an **S60** provides greater mechanical advantage, meaning that less effort is required at the winch handle, even when the sheet load is close to its maximum. The **S52** provides a compromise between the two.

To calculate the righting moment of a specific boat, use the calculator available at www.seldenmast.com.

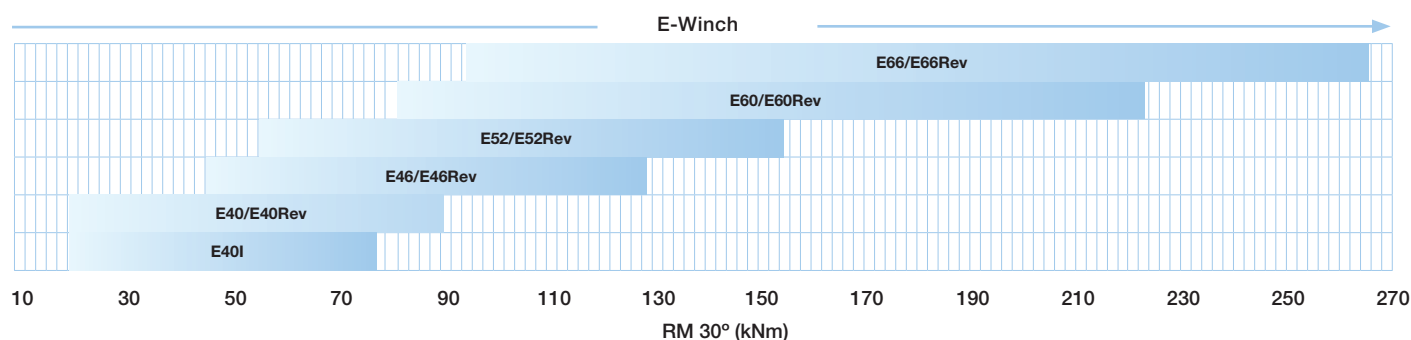
DIMENSIONING

E-SERIES

MAINSAIL

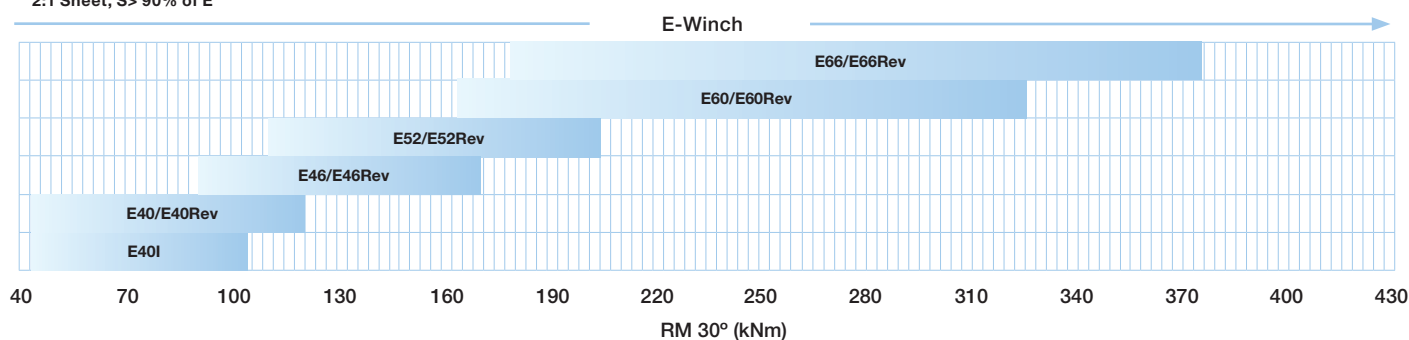


MAIN AND JIB/GENOA HALYARD - FRACTIONAL RIG



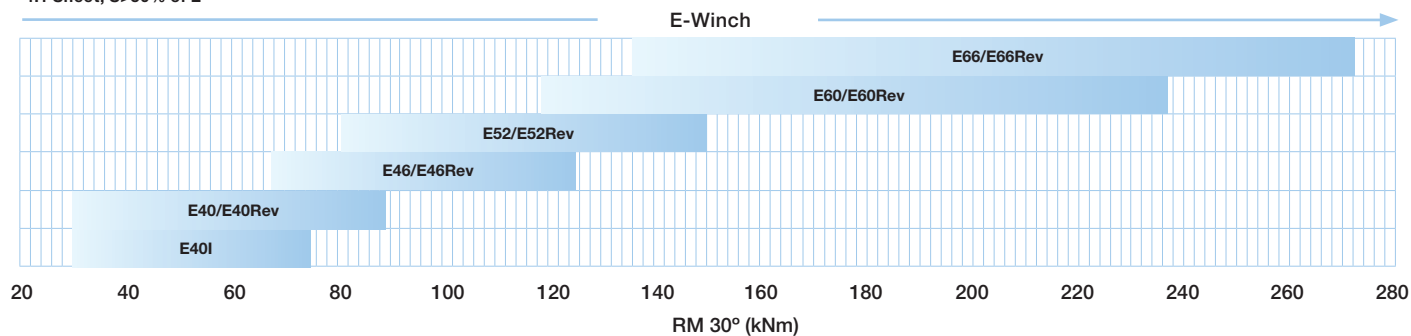
MAIN SHEET, END SHEETED BOOM - FRACTIONAL RIG

2:1 Sheet, S> 90% of E

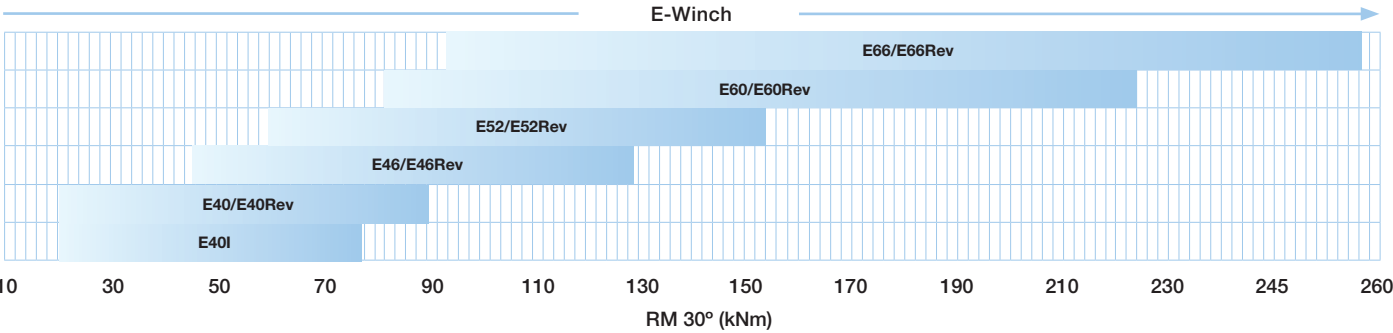


MAIN SHEET, MID SHEETED BOOM - FRACTIONAL RIG

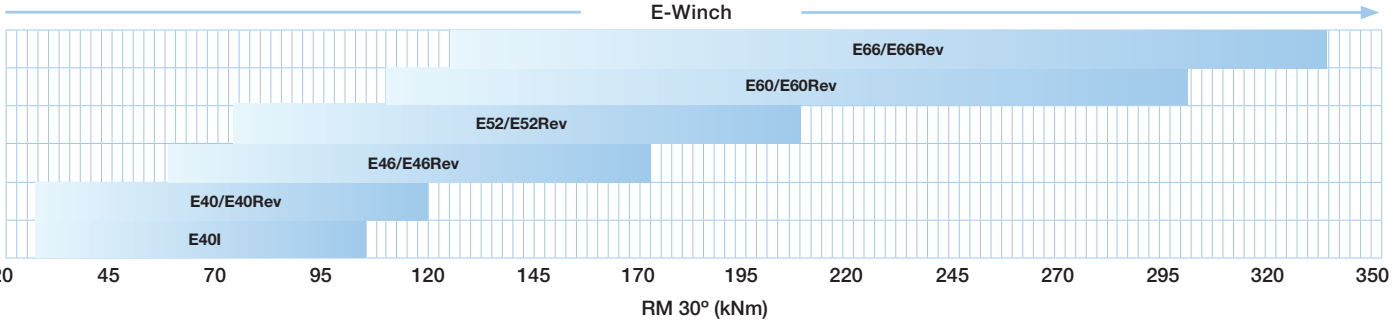
4:1 Sheet, S>50% of E



MAIN OUTHAUL - FRACTIONAL RIG

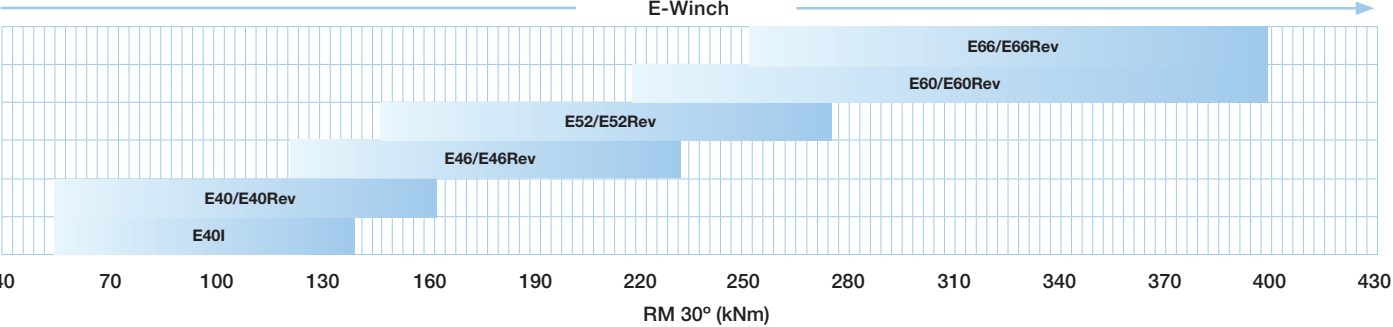


MAIN HALYARD - MAST HEAD RIG



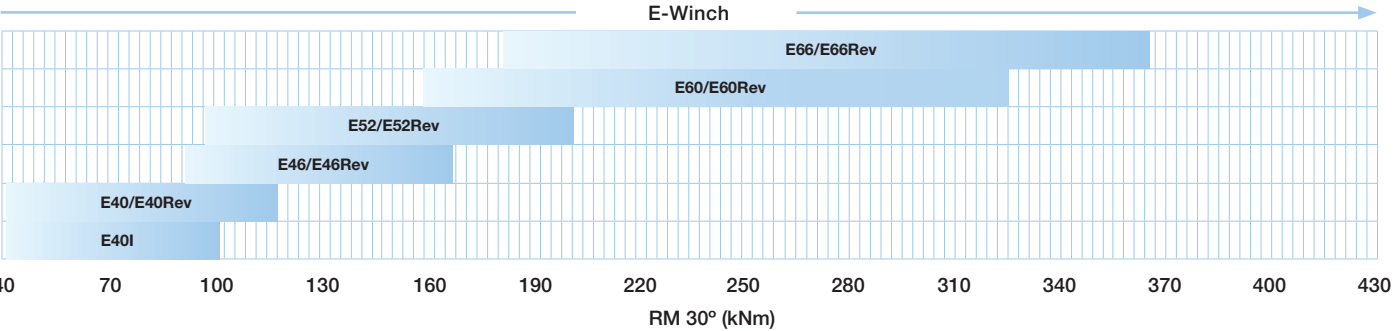
MAIN SHEET, END SHEETED BOOM - MAST HEAD RIG

2:1 Sheet, S> 90% of E

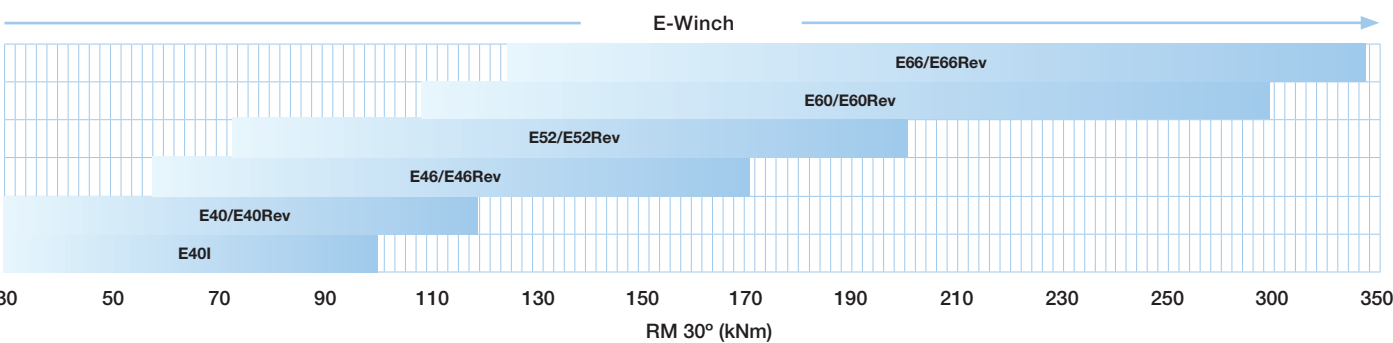


MAIN SHEET, MID SHEETED BOOM - MAST HEAD RIG

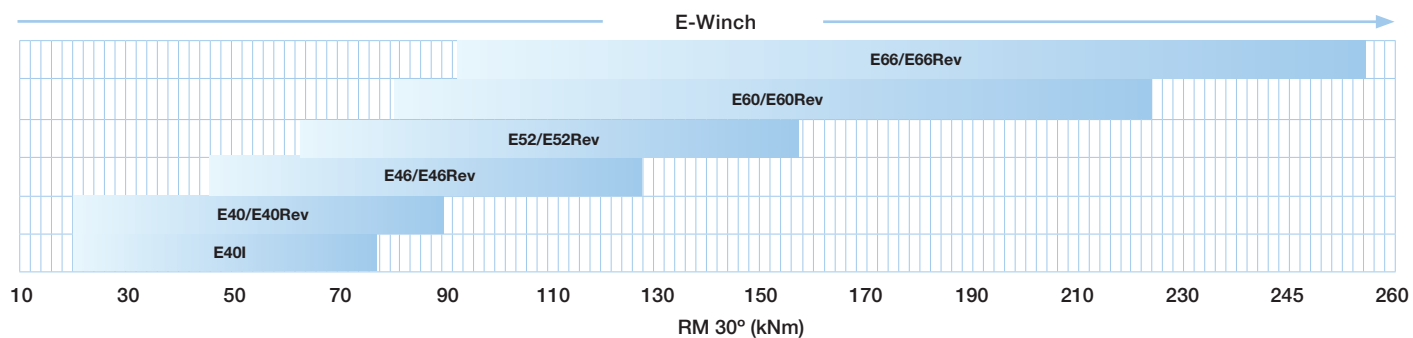
4:1 Sheet, S>50% of E



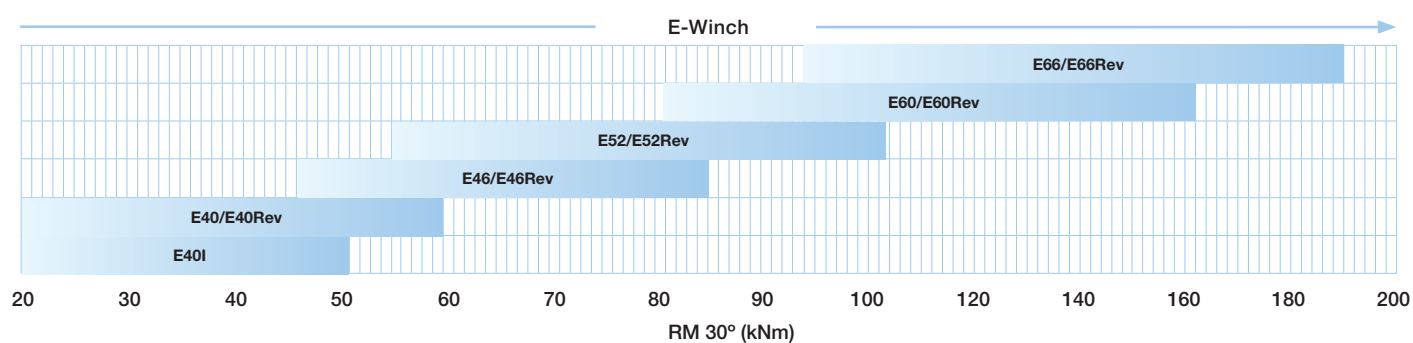
MAIN OUTHAUL - MAST HEAD RIG



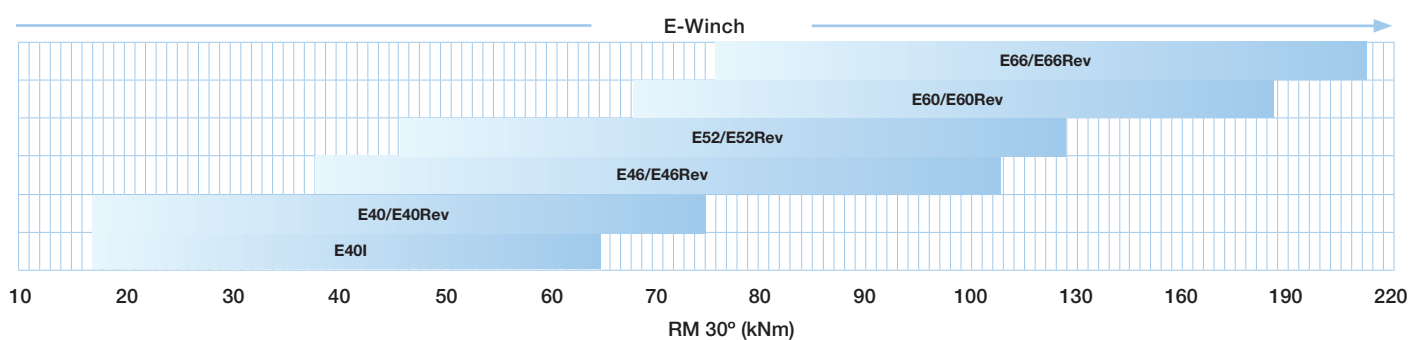
MAIN AND JIB/GENOA HALYARD - FRACTIONAL RIG



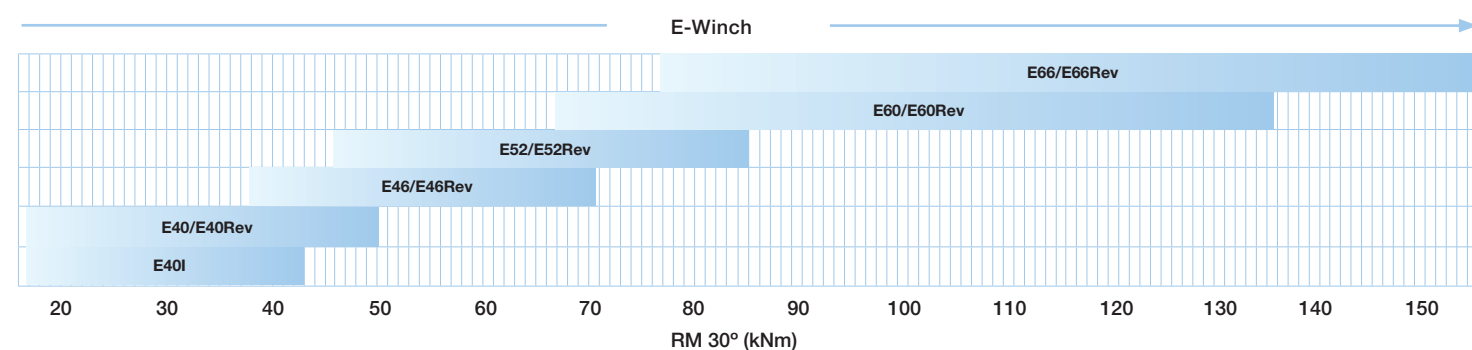
JIB/GENOA SHEET - FRACTIONAL RIG



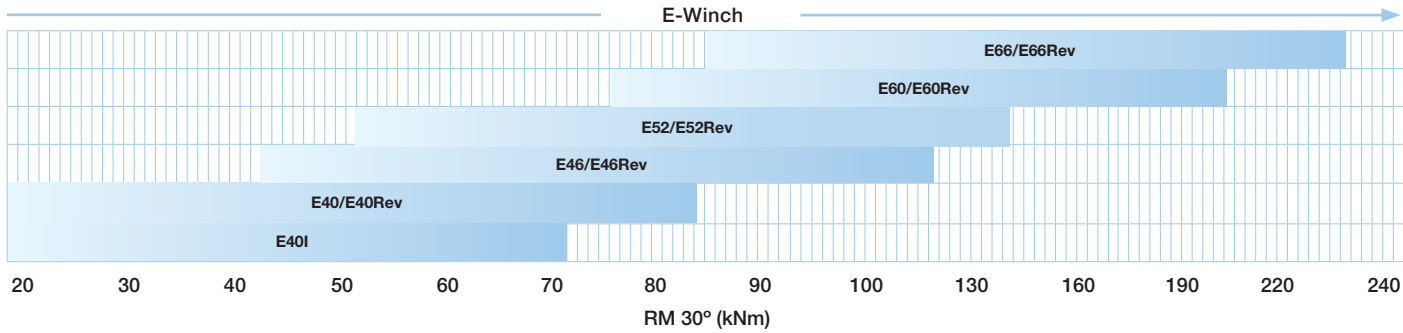
JIB/GENOA HALYARD - MAST HEAD RIG



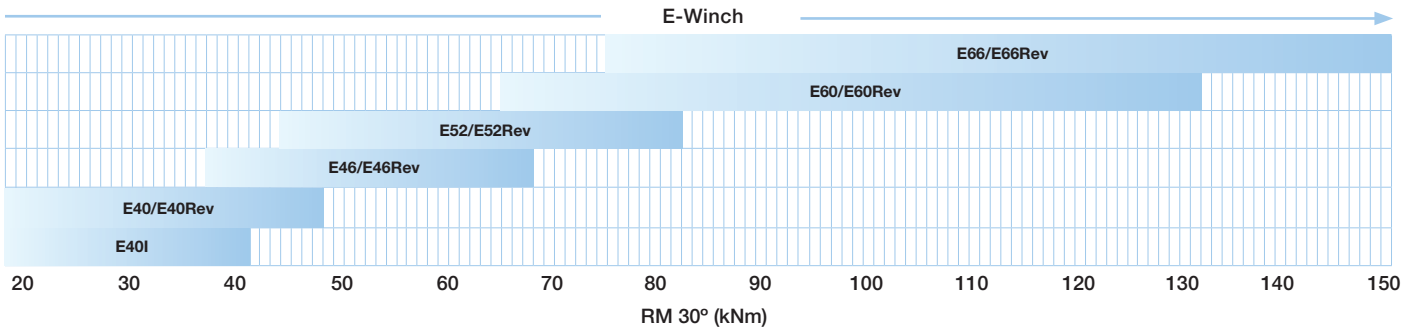
JIB/GENOA SHEET - MAST HEAD RIG



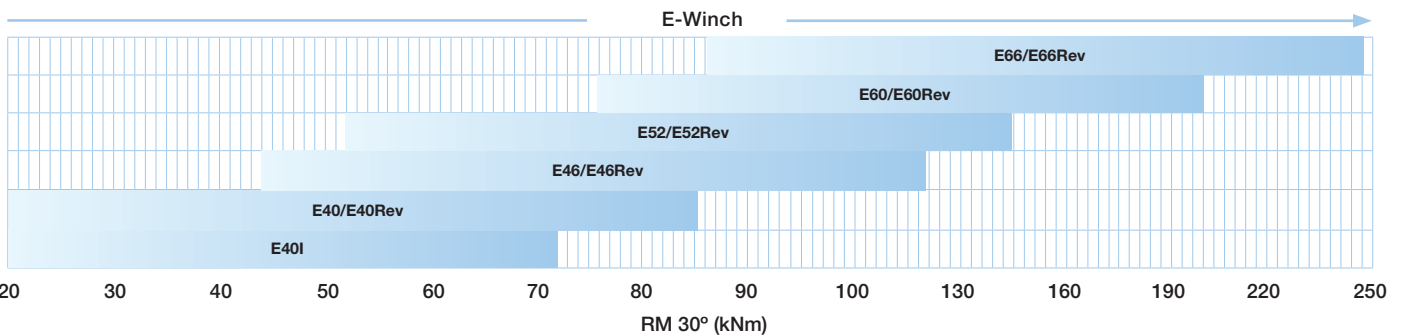
CODE 0 HALYARD
2:1 Halyard



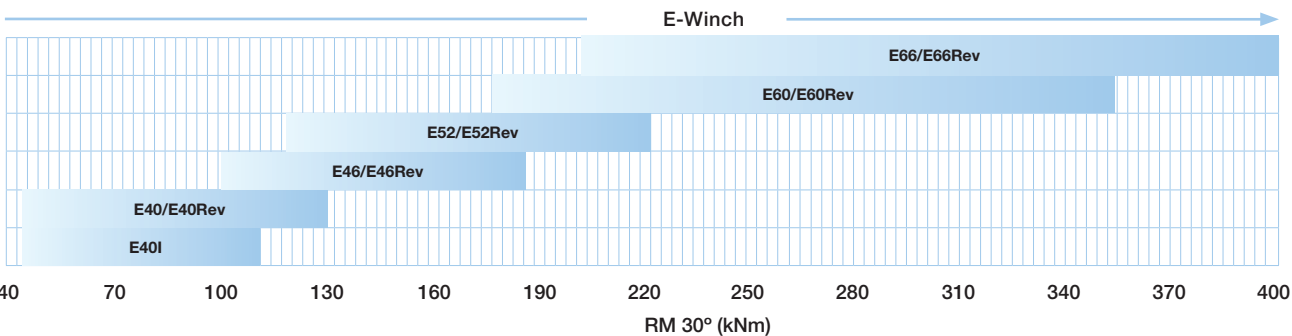
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SPINNAKER AND GENNAKER HALYARD

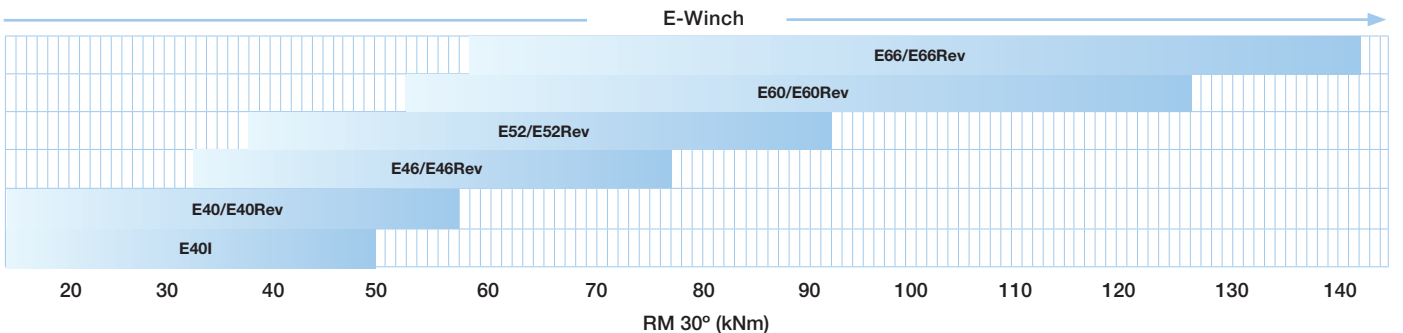


GENNAKER SHEET



SPINNAKER SHEET AND GUY

(Sheet load is approximately 50-35% of guy load)



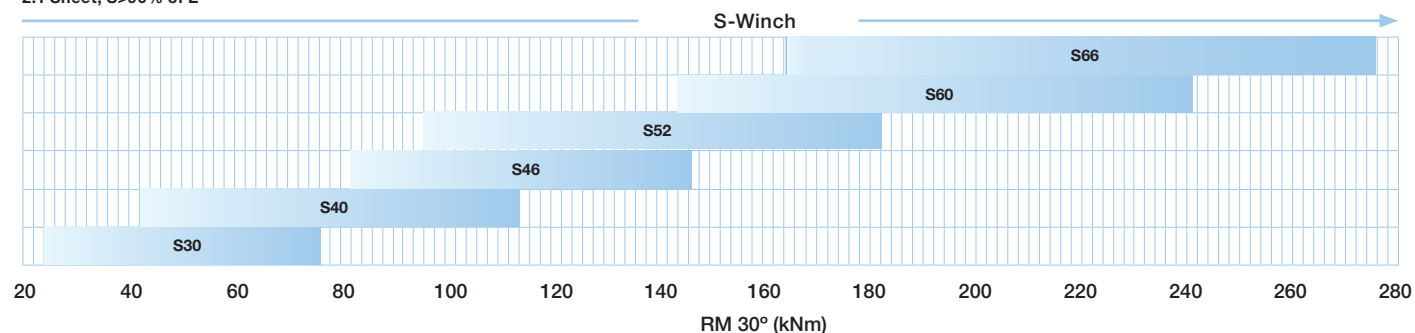
S-SERIES

MAINSAIL



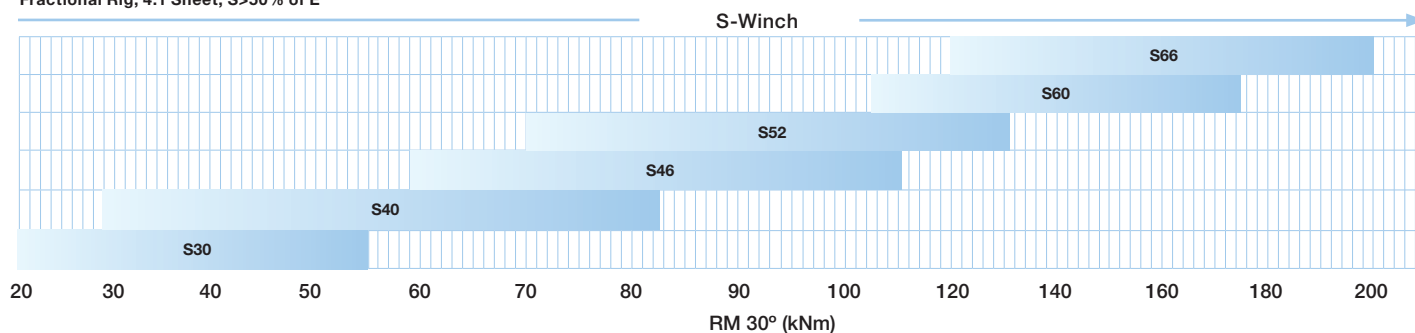
MAIN SHEET, END SHEETED BOOM - FRACTIONAL RIG

2:1 Sheet, S>90% of E

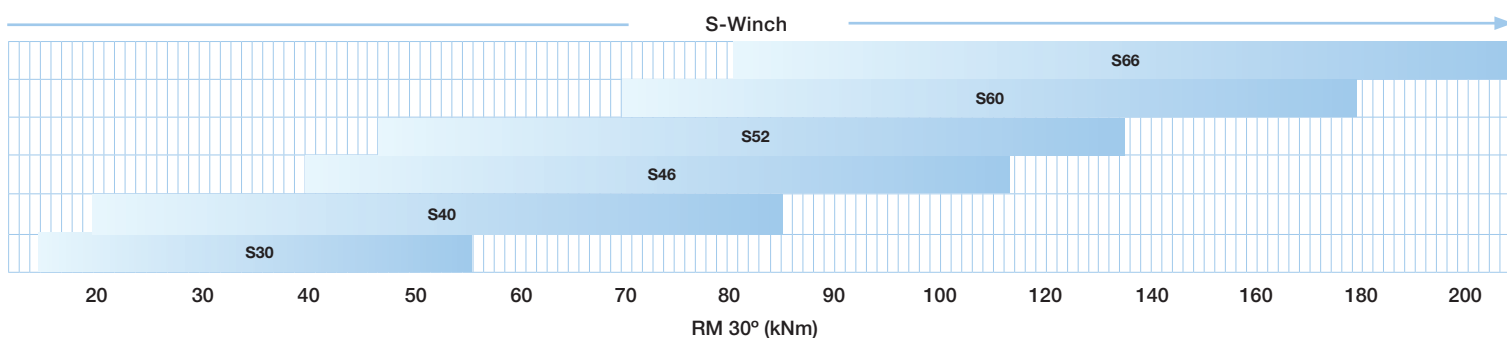


MAIN SHEET, MID SHEETED BOOM- FRACTIONAL RIG

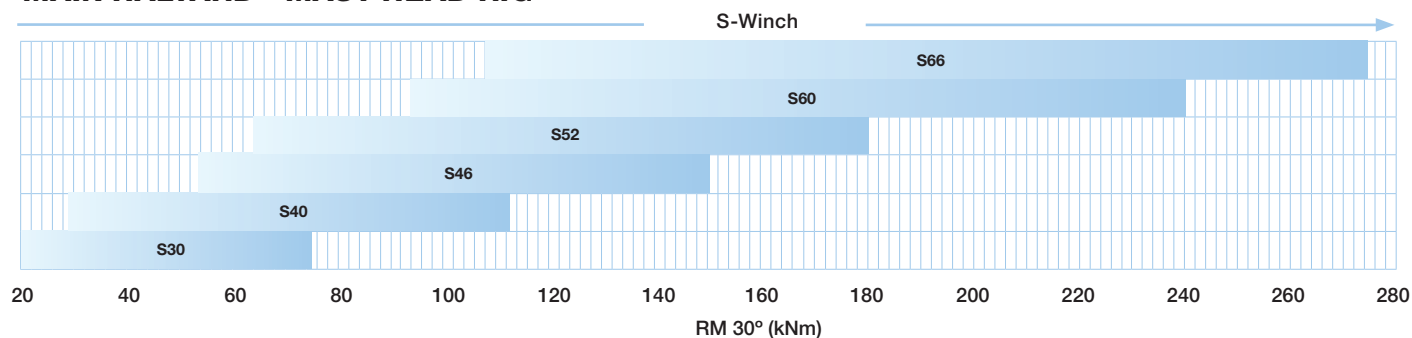
Fractional Rig, 4:1 Sheet, S>50% of E



MAIN OUTHAUL - FRACTIONAL RIG

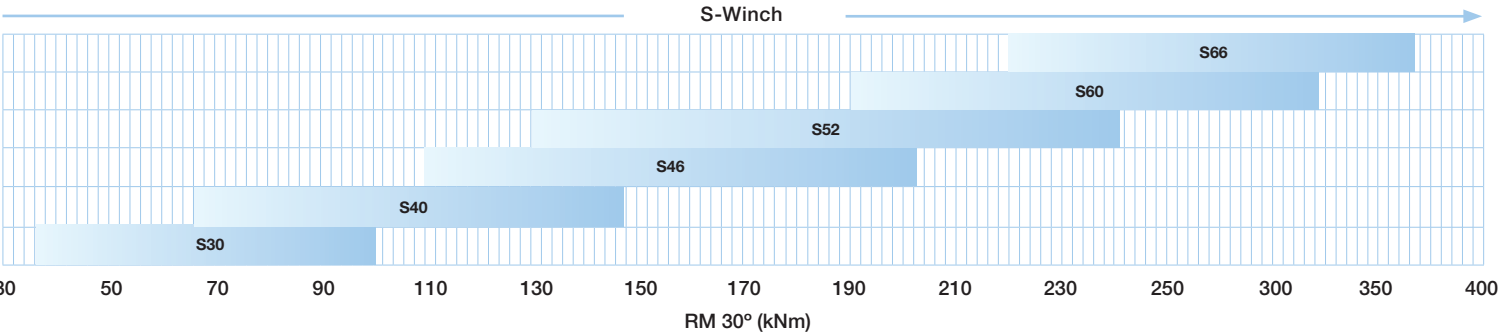


MAIN HALYARD - MAST HEAD RIG



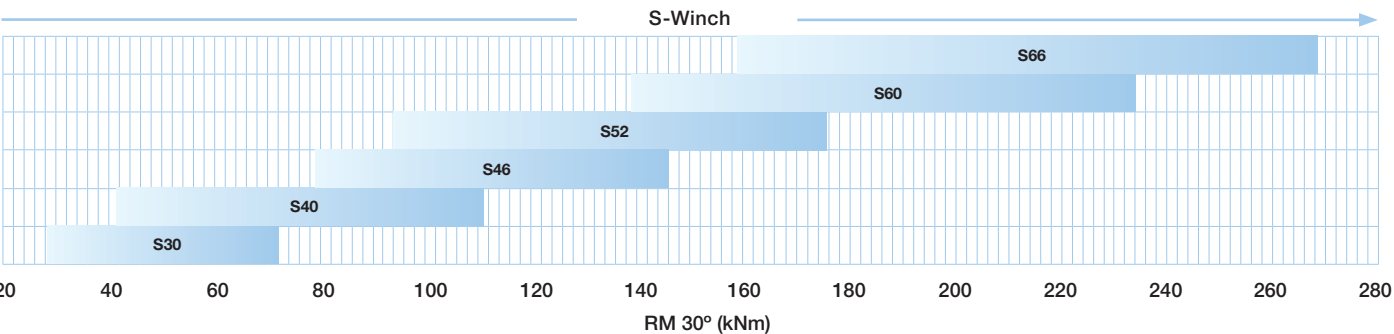
MAIN SHEET, END SHEETED BOOM - MAST HEAD RIG

2:1 Sheet, S>90% of E

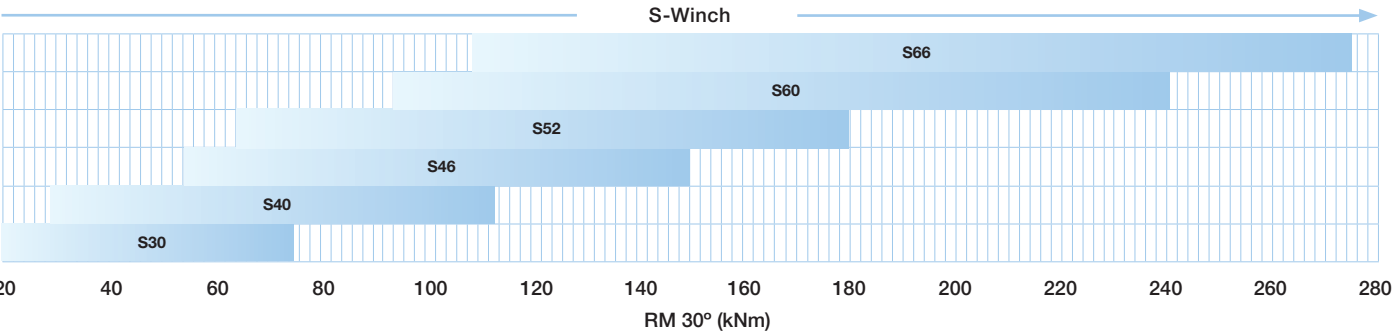


MAIN SHEET, MID SHEETED BOOM - MAST HEAD RIG

4:1 Sheet, S>50% of E

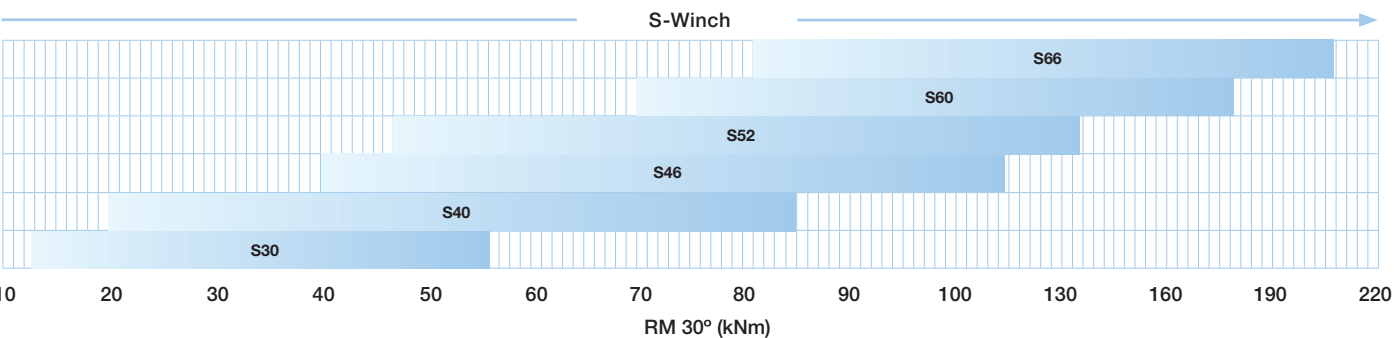


MAIN OUTHAUL - MAST HEAD RIG

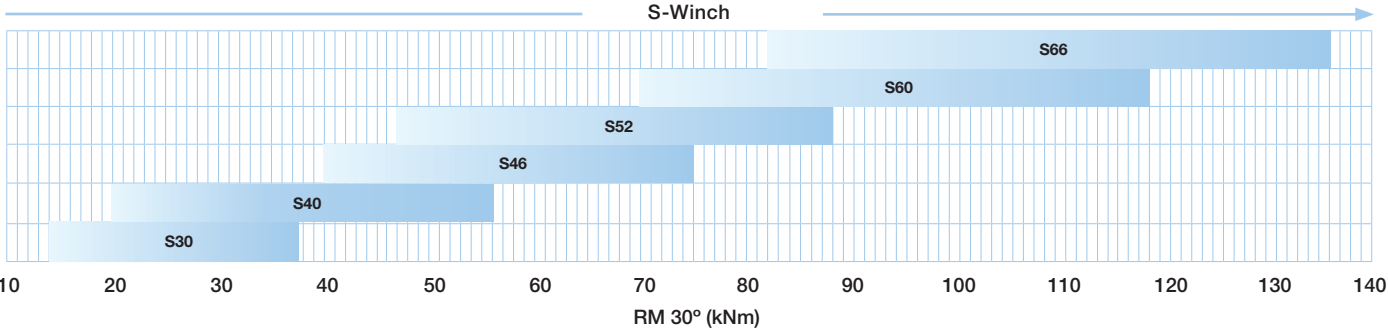


JIB & GENOA

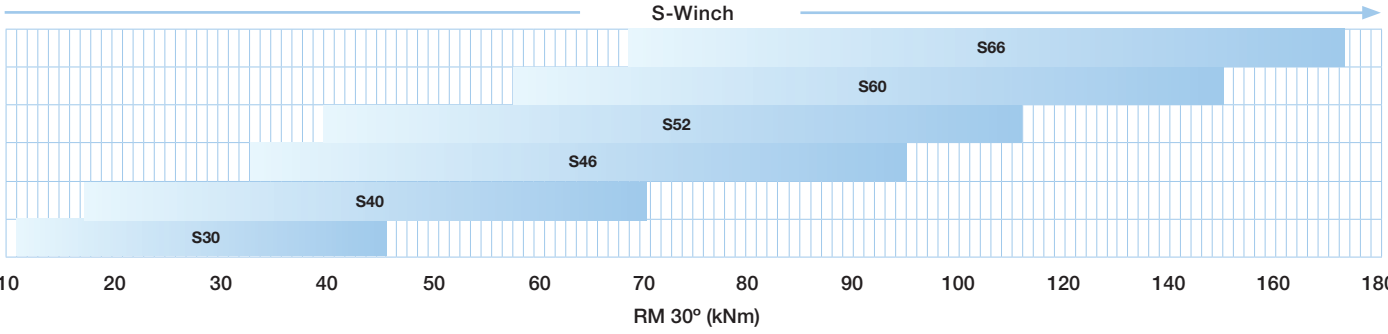
MAIN AND JIB/GENOA HALYARD - FRACTIONAL RIG



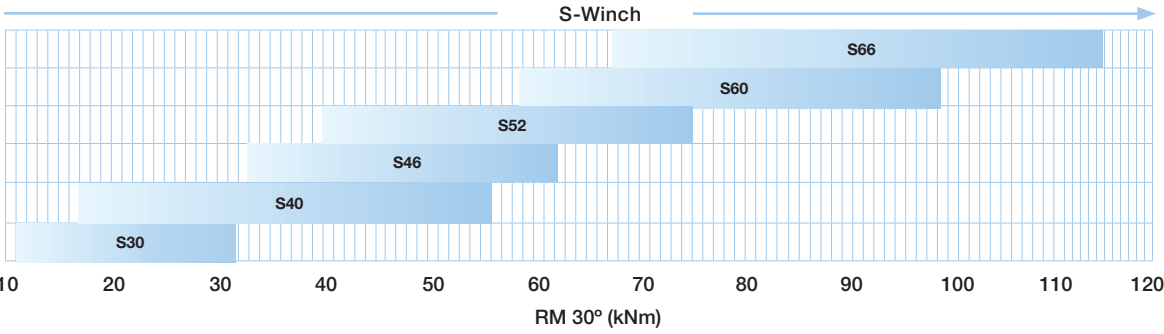
JIB/GENOA SHEET - FRACTIONAL RIG



JIB/GENOA HALYARD - MAST HEAD RIG



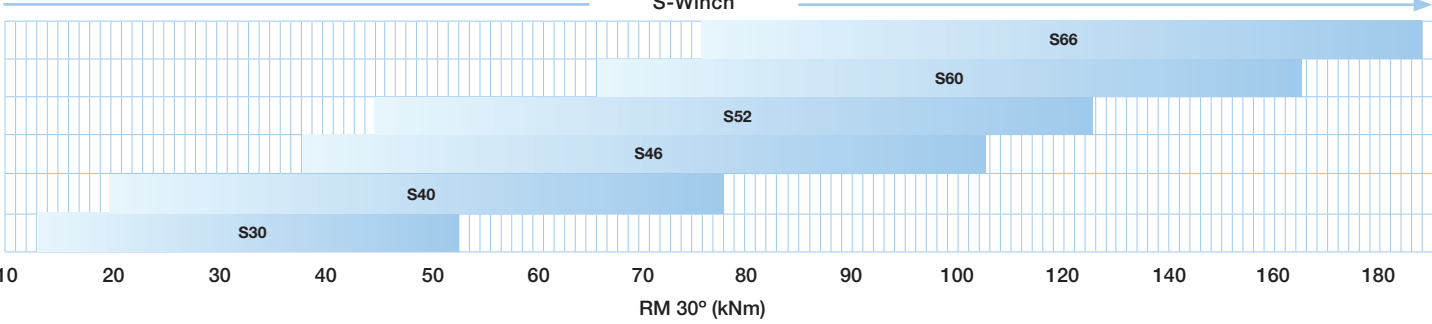
JIB/GENOA SHEET - MAST HEAD RIG



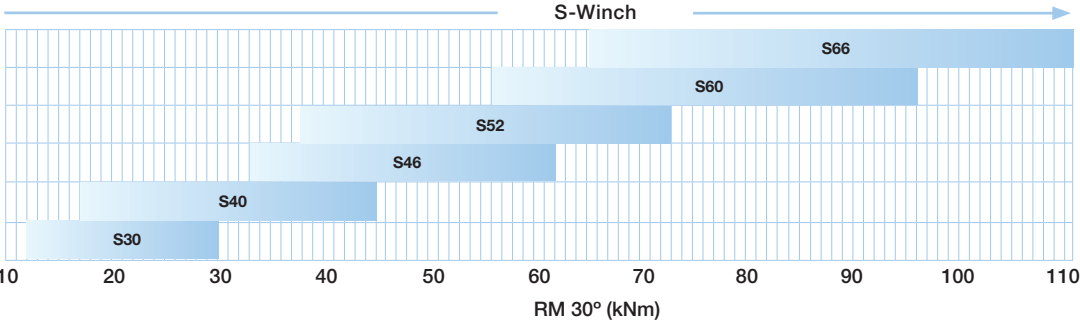
FLYING SAILS

CODE 0 HALYARD

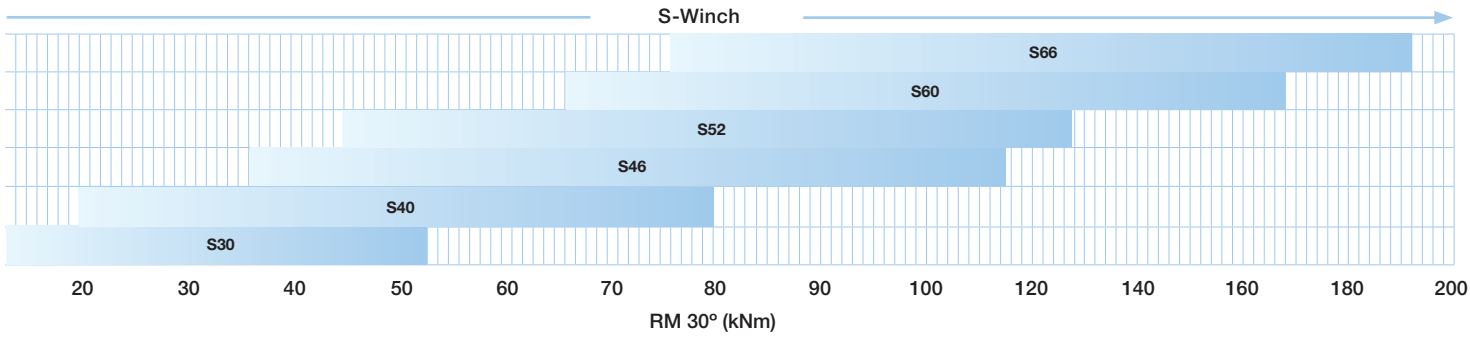
2:1 Halyard



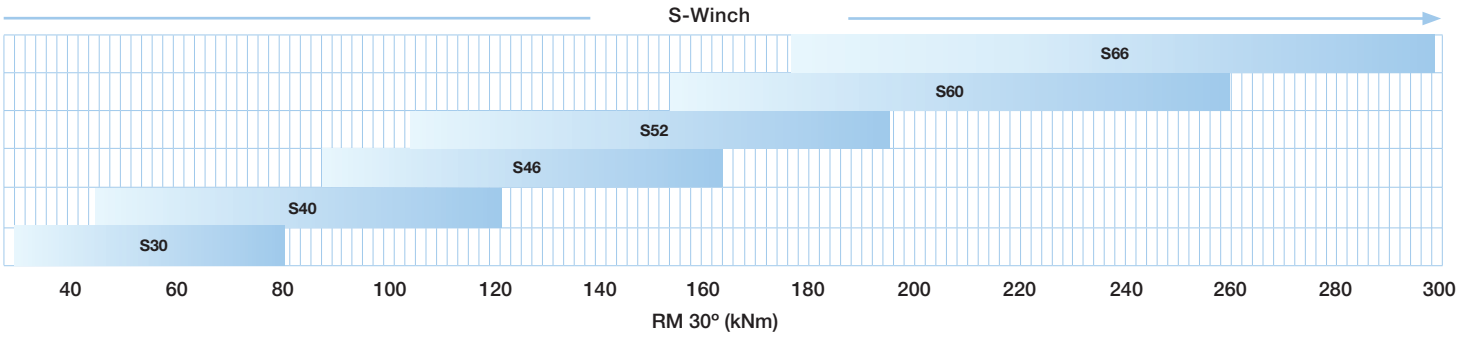
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SPINNAKER AND GENNAKER HALYARD

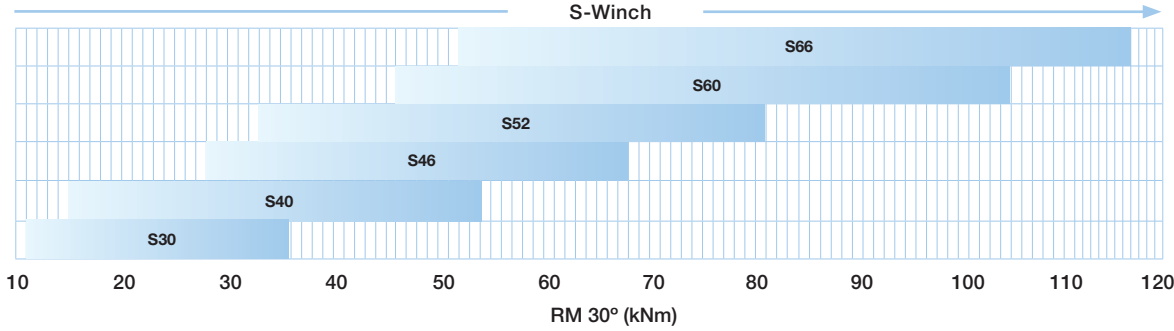


GENNAKER SHEET



SPINNAKER SHEET AND GUY

(Sheet load is approximately 50-35% of guy load)



DINGHIESKEELBOATSYACHTS

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