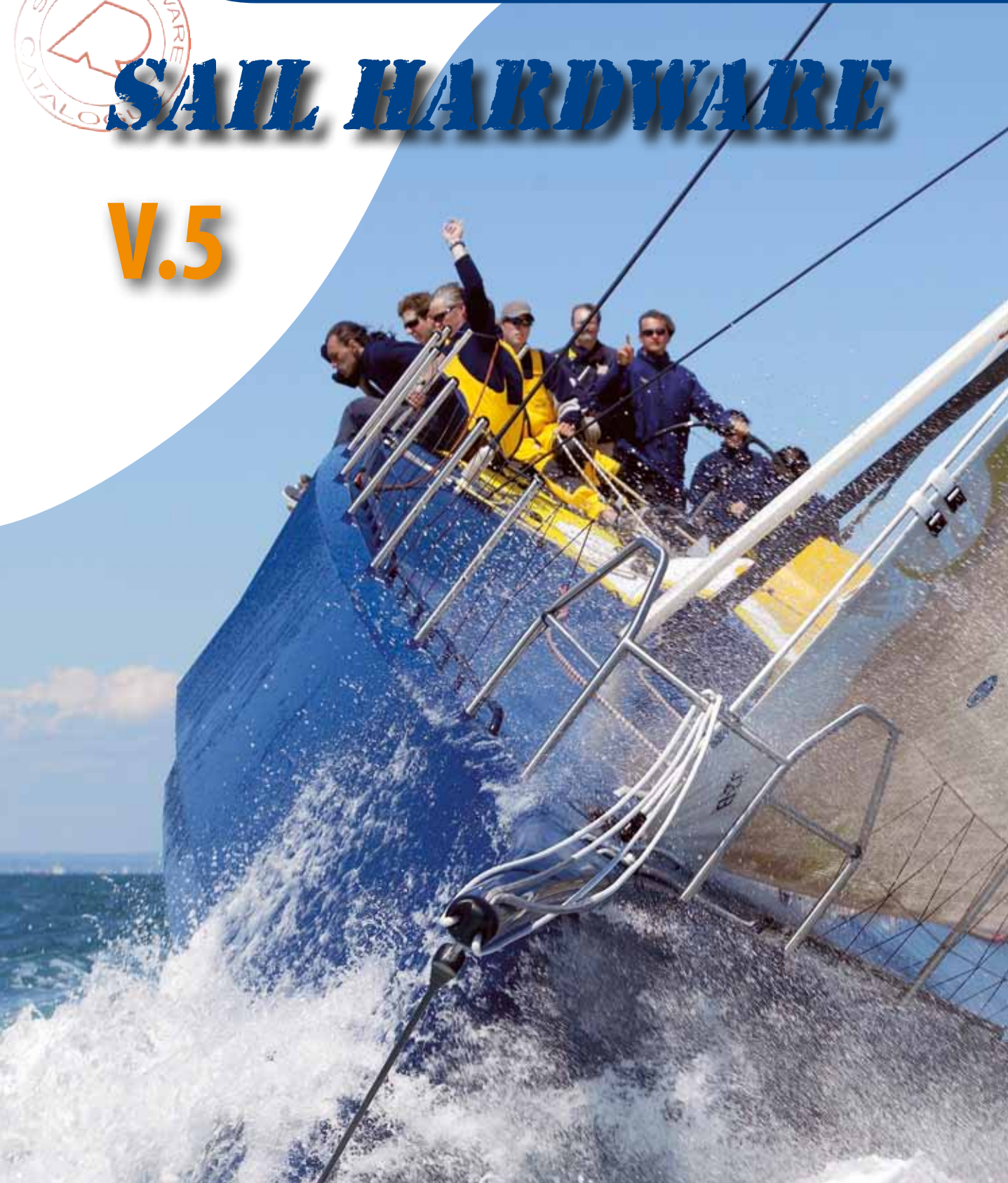


**RUTGERSON**  
*Best in action*



# **SAIL HARDWARE**

**V.5**





## Welcome to the World of Rutgerson.

***"Our vision is to offer the most innovative as well as functional solutions to the international marine market. Additionally, all our products have both unique design and the highest level of safety."***

*- Göran Rutgerson, Executive Director and owner.*

Our products have evolved from more than 35 years of experience obtained through research and development, as well as strong partnerships with the world leading manufacturers and designers within the marine industry. Functionality and design are not the only criteria for producing a superior product. The truly distinguishing features of Rutgerson products are reliability and trust.

The company is situated in Marstrand, the heart of the Swedish west coast, and one of Europe's leading sailing centres. Sailing conditions around Marstrand are tough, and the personnel have first-hand experience of what our products must withstand in terms of safety and durability. With production, sales and administration in the same building we are very flexible and we have fast, reliable deliveries.

Our wide assortment of products is designed for various needs and demands. Our three main product areas are sail hardware, deck hardware as well as portlights and hatches. Rutgerson Marin AB is represented in all parts of the world through our global distribution network. We have around forty local distributors and we are also in some cases in direct contact with sail makers, boat builders and boatyards.

The idea behind the production of the latest catalogue was to provide more technical support, but also to inspire our customers. The goal was a catalogue that suits both professionals within the marine industry as well as enthusiastic boat-owners. We hope that you will find this catalogue instructive and enjoyable.

Our core values, reliability, innovation, performance and experience, signify that we constantly design new innovative products that you can always rely on even in extremely rough conditions.

Only with all these aspects could a product be called superior. Therefore, Rutgerson proudly presents products that truly are "Best in Action".

Best regards,  
The Rutgerson Crew  
Marstrand, Sweden



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Super Rings  
& Tools

SR Slug Slides

Head-, Clewboards  
& Blocks

Batten fittings

Battens

Battens &  
Accessories

Rings & Hanks

Sail Slides,  
Shackles & Cleats

Carbon Fibre  
Products



## SUPER RING SPECIFICATIONS

The Super Ring was invented by Göran Rutgerson, CEO and owner, during the 70's and it has since then lead the way of cost efficient solutions in sailmaking. The ring, which is made of molybdenum stainless steel, is not only used by the majority of sailmakers in the industry, but also by parachute and various cover manufacturers, food producers as well as suppliers to the oil and gas industry. The Super Ring is made of high grade Swedish stainless steel and is being refined in a complex system of forming and blanking dies. When inserted into a cloth, the Super Ring's teeth penetrate easily without damaging the surrounding areas. In addition to this, the teeth of the Super Ring are evenly spaced to provide maximum holding power as they bend uniformly to spread the load.

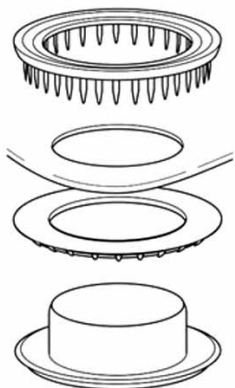
Rutgerson has taken the famous Super Ring concept to the next level by making the latest version out of titanium. The titanium rings weigh 50 % less than the Super Rings made of stainless steel. Titanium is a non conductive material, so it is the best insurance against corrosion.

For cost efficient industrial applications, in which there is no need for the added value of shiny surfaces, the Super Ring can also be offered in unpolished versions. The same quality, but more competitively priced.

The Super Ring is delivered in a set that consists of a toothed washer, a centrepiece and a plastic insert.

Part no	Product description	Hole punch Ø [mm]	Final dimensions [mm]			Approx max load [kg]	Packed per
			Inner Ø	Outer Ø	Steel thickness Liner / Tooth part		
<b>SUPER RING Standard versions</b>							
1000-10	SR10	11	10	23	0,5 / 0,5	250	100
1000-12	SR12	13	12	26	0,5 / 0,5	330	100
1000-14	SR14	15	14	28	0,8 / 0,8	500	100
1000-14L	SR14L Long	15	14	28	0,8 / 0,8	500	50
1000-20	SR20	22	20	40	1,5 / 1,0	1500	100
1000-20LD	SR20LD Light Duty	22	20	40	1,0 / 1,0	1125	100
1000-25	SR25	28	25	46	1,5 / 1,0	1590	100
1000-25LD	SR25LD Light Duty	28	25	46	1,0 / 1,0	1400	100
1000-25SL	SR25SL Super Light Duty	28	25	46	0,6 / 0,6	450	100
1000-35	SR35	38	35	58	1,5 / 1,5	2045	50
1000-45	SR45	48	45	72	1,5 / 2,0	2500	20
1000-55	SR55	60	55	86	2,0 / 2,5	3185	1
<b>Titanium SUPER RING</b>							
3000-14	Titanium Super Ring 14	15	14	28	0,8 / 0,8	375	30
3000-20	Titanium Super Ring 20	22	20	40	1,5 / 1,0	840	20
3000-25	Titanium Super Ring 25	28	25	46	1,5 / 1,0	1190	20
3000-35	Titanium Super Ring 35	38	35	58	1,5 / 1,5	1530	20
3000-45	Titanium Super Ring 45	48	45	72	1,5 / 2,0	1875	10
<b>SUPER RING for Industrial applications – Unpolished</b>							
1005-10	SR10 Unpolished	11	10	23	0,5 / 0,5	250	500
1005-12	SR12 Unpolished	13	12	26	0,5 / 0,5	330	500
1005-20LD	SR20LD Unpolished	22	20	40	1,0 / 1,0	1125	500
1005-25LD	SR25LD Unpolished	28	25	46	1,0 / 1,0	1400	500
1005-25SL	SR25SL Unpolished	28	25	46	0,6 / 0,6	450	500
1005-35	SR35 Unpolished	38	35	58	1,5 / 1,5	2045	250

## Super Ring application guide

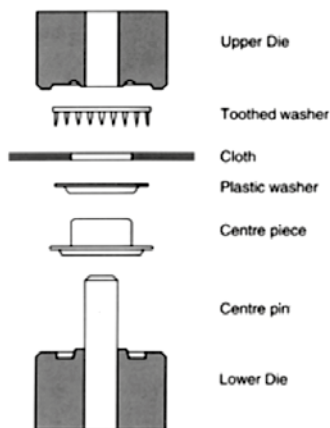


Ring size	Suitable application	Hole punch Ø [mm]	Press force on dies [tonnes]	Approx load [kg] per application	Patch weight
10	Sailboards, dinghy's and reef points	11	Press by hand	150 250	25oz 35oz
12	Sailboards, dinghy's and reef points	13	Press by hand	300 350	25oz 35oz
14	Dinghy's, light keel boats and reef points	15	3-5	350 500	25oz 40oz
14L	Industrial and thick cloth applications	15	3-5	350 500	30oz 45oz
20	25-30 ft boats	22	11-13	700 1500	40oz 70oz
20LD	Sailboards and spinnakers	22	8-10	600 1125	30oz 70oz
25	28-32 ft boats	28	15	1000 1600	50oz 70oz
25LD	Spinnakers and 28-32 ft boats	28	11-13	750 1300	50oz 70oz
25SL	Slider parachutes and spinnakers	28	6-8	300 450	20oz 40oz
35	30-36 ft boats and heavy parachutes	38	22	1455 2045	70oz 90oz
45	34-46 ft boats	48	25	2000 2500	80oz 100oz
55	46-80 ft boats	60	25 (1st pressing) 30 (2nd pressing)	2800 3200	80oz 100oz



## Super Ring Closing tools

The Closing tools for Rutgerson Super Rings are made of high grade tool steel that has been hard chromed and hardened to highest possible industry standards.



The tools for SR10 and SR12 are suitable for hand hammering or hydraulic press operations. The SR55 requires a two-step pressing process and this tool is constructed as a four piece tool.

For maximum durability it is mandatory to keep the tools clean from dirt and not to exceed the recommended press force on the dies listed below. The Closing tools are specially constructed for pressing no other rings than the Rutgerson Super ring. This can cause crucial damage to the tool. The tools should be replaced every 10 000 presses if proper maintenance has been performed.



Part no	Reference number	For SR Ring part #	Press force on dies [tonnes]	Packed per	Number of parts	Part no spare parts	Product description
<b>SUPER RING Closing Tools</b>							
1030-10	SRT10	1000-10 1004-10 1005-10	Press by hand	Set	3	1030-001 1030-10-1 1030-10-2	Guide pin Bottom part Upper part
1030-12	SRT12	1000-12 1005-12	Press by hand	Set	3	1030-001 1030-12-1 1030-12-2	Guide pin Bottom part Upper part
1030-14	SRT14	1000-14 1000-14L 2000-14	3 - 5	Set	3	1030-001 1030-14-1 1030-14-2	Guide pin Bottom part Upper part
1030-20	SRT20	1000-20 1000-20LD 1005-20LD 2000-20	11 - 13	Set	3	1030-002 1030-20-1 1030-20-2	Guide pin Bottom part Upper part
1030-25	SRT25	1000-25 1000-25LD 1005-25LD 2000-25	15	Set	3	1030-002 1030-25-1 1030-25-2	Guide pin Bottom part Upper part
1032-25	SRT25SL	1000-25SL 1005-25SL	6 - 8	Set	3	1030-002 1032-25-1 1032-25-2	Guide pin Bottom part Upper part
1030-35	SRT35	1000-35 1005-35	22	Set	3	1030-003 1030-35-1 1030-35-2	Guide pin Bottom part Upper part
1030-45	SRT45	1000-45 2000-45	25	Set	3	1030-003 1030-45-1 1030-45-2	Guide pin Bottom part Upper part
1030-55	SRT55	1000-55	25 (1st pressing) 30 (2nd pressing)	Set	4	1030-003 1030-55-01 1030-55-02 1030-55-03	Guide pin Bottom part Upper part Upper part

## Super Ring Removal tools

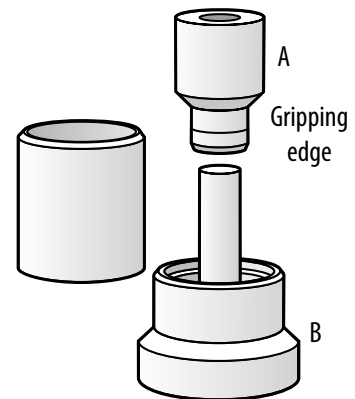
The Rutgerson Ring Removal Tool is a simple and well engineered tool that quickly presses and disassembles the ring from the cloth without damaging or weakening the structural integrity of the cloth.

This hydraulic, press operated tool will reduce a two hour operation to one that only takes less than 30 seconds. New rings may be pressed into the original cloth immediately, using the same holes in the cloth for a new toothed washer.

Part no	Product description	For SR Ring size	Packed per
<b>SUPER RING Removal Tools</b>			
1040-14	RP14	14	Set
1040-20	RP20	20	Set
1040-25	RP25	25	Set
1040-35	RP35	35	Set
1040-45	RP45	45	Set
1040-55	RP55	55	Set



1040-25



Place the pressed ring on the **Lower Die (B)** with the washer with teeth on top and the roller liner washer in the bottom.

Place the **Punch (A)** over the guide post with the **Gripping Edge** down on top of the ring. The Cutting Edge is recognised by its concave shape.

Press until the bottom of the ring has sheared completely free of the toothed ring, or until the punch is in line with the bottom of the red band.

## Super Ring Hole punches

Part no	Product description	Ø [mm]	Packed per
<b>SUPER RING Hole Punching Tools</b>			
1060-11	Holepunch for SR10	11	Pc
1060-13	Holepunch for SR12	13	Pc
1060-15	Holepunch for SR14	15	Pc
1060-22	Holepunch for SR20	22	Pc
1060-28	Holepunch for SR25	28	Pc
1060-38	Holepunch for SR35	38	Pc
1060-48	Holepunch for SR45	48	Pc
1060-60	Holepunch for SR55	60	Pc

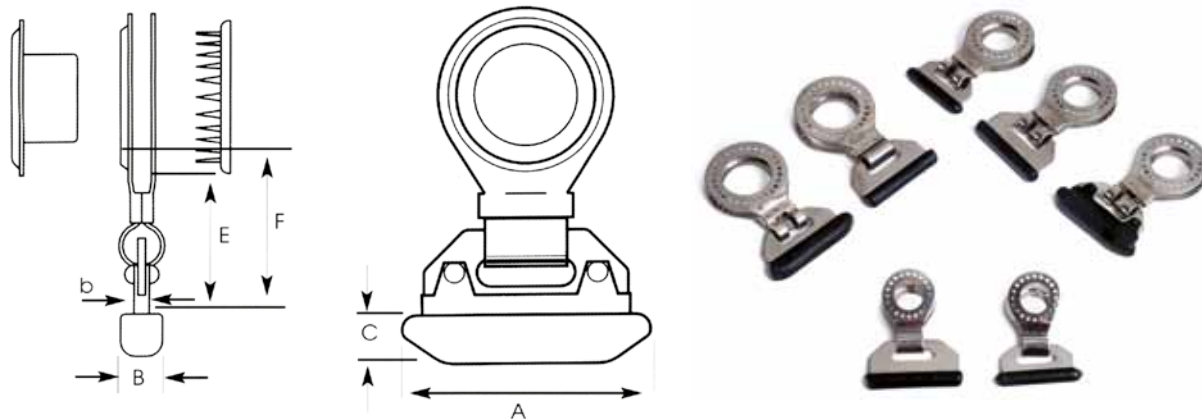




## SUPER RING SLUG SLIDES & INDUSTRIAL APPLICATIONS

### Super Ring Integral Slug slides

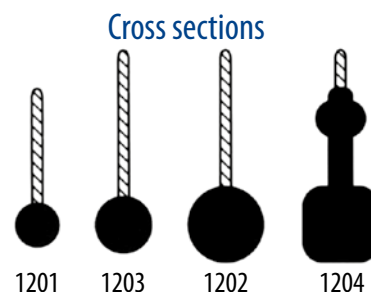
The AISI 316 Stainless Steel outhaul integral slug slides, fit into the Rutgerson Super Ring system. Use the corresponding size of Super Rings and press the slug slide into the sail or canvas application in one go.



Part no	Product description	Dimensions [mm]							Slug slide ref #	Fit SR ref #
		A	B	b	C	D	E	F		
<b>SUPER RING Integral (Outhaul) Slug Slides</b>										
1012-07	Slug Slide integrated Ø7mm, round	48	7	2,0	7	9,0	28	34	1201	SR14/14L
1012-09	Slug Slide integrated Ø9mm, round	54	9	2,0	9	14	33	47	1203	SR14/14L
1014-07	Slug Slide integrated Ø7mm, round	48	7	2,0	7	9,0	28	34	1201	SR20/20LD
1014-09	Slug Slide integrated Ø9mm, round	54	9	2,0	9	14	33	47	1203	SR20/20LD
1014-12	Slug Slide integrated 12mm, square	61	12	2,0	12	7,5	31	45	1204	SR20/20LD
1016-09	Slug Slide integrated Ø9mm, round	54	9	2,0	9	14	33	47	1203	SR25/25LD
1016-12	Slug Slide integrated 12mm, square	61	12	2,0	12	7,5	31	45	1204	SR25/25LD

### Single slug slides

Part no	Product description	Dimensions [mm]			Approx SWL [kg]	Packed per
		Length	Ø	Plate thickness		
<b>Slug Slides</b>						
1201	Slug Slide Ø7mm	48	7	2,0	250	10
1202	Slug Slide Ø12mm	54	9	2,0	500	10
1203	Slug Slide Ø9mm	48	7	2,0	500	10
1204	Slug Slide 12mm	54	9	2,0	500	10





## Super Ring Integral D-ring

Especially made for tents, this integrated D-ring has proven to be very useful when you want a ring in which you can fit a tie-down line.

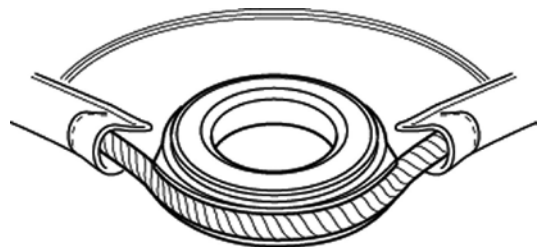
Part no	Product description	Fits SR ref #	Packed per
<b>Super Ring Integral D-ring, hinged</b>			
1014-127	Super Ring Hinge with D-ring # 2325-5006	SR20	Pc
1014-151	Super Ring Hinge with D-ring # 2325-2505	SR20	Pc
1016-127	Super Ring Hinge with D-ring # 2325-5006	SR25	Pc
1016-151	Super Ring Hinge with D-ring # 2325-2505	SR25	Pc



## Super Ring Wire Rope Support Thimble



1020-XX

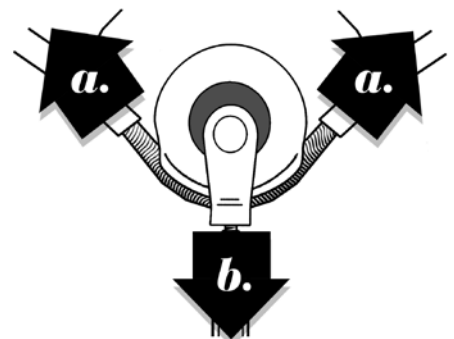


Part no	Product description	Maximum wire/rope Ø [mm]	Fit SR ref #
<b>SUPER RING Support Thimble</b>			
1020-14	Support thimble fitting for SR14	5	SR14/14L
1020-20	Support thimble fitting for SR20	6	SR20
1020-45	Support thimble fitting for SR45	8	SR45

The thimble fitting holds the wire in place and displays the forces proportionally between the ring, the thimble fitting and the cloth.

The wire rope in the leech of the tarp/sail is guided over the Support Thimble (a).

Turnbuckle or fork-terminal is linked into the Super Ring for transferring the tension of the tarp to the superstructure carrying the cloth. (b)

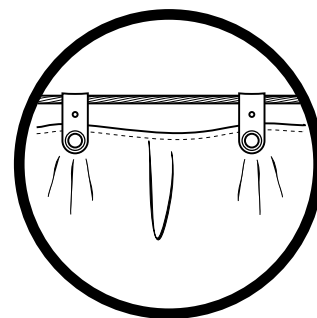
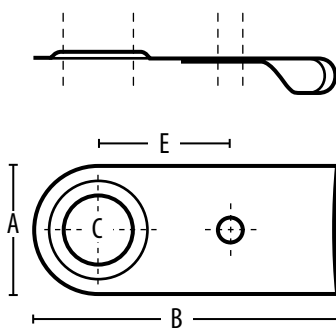




## Super Grip Attachments

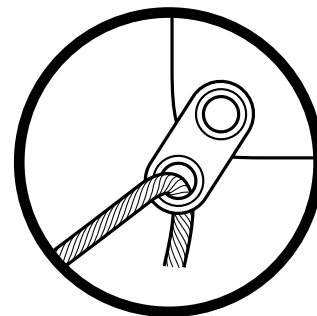
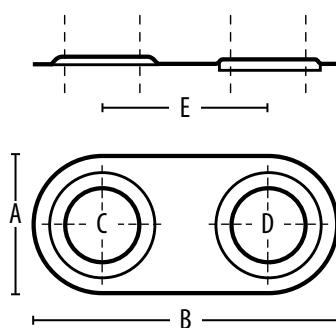
### Wire/Rope Attachment 10XX-940

These attachments are specially designed for situations in which you have a tensioning wire or rope running along the edge of a tent or an architectural structure. This mechanical fastening is closed by bolts and nuts to permit attachment to a pressed or spliced wire.



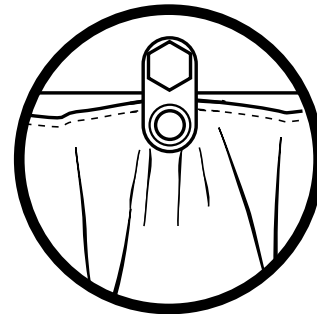
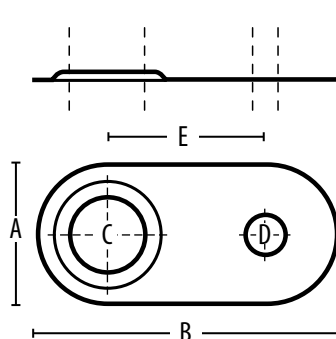
### Multipurpose Attachment 10XX-950

This attachment has a smoothly rounded tie-in hole that protects ropes, webbings, wires etc. from chafing. For example, by pressing in a Super Ring with one or more attachments, an additional hole(s) is created for securing ropes, wires or webbings in one simple operation.



### Bolt Through Attachment 10XX-970

When designing permanent architectural structures it is often necessary to bolt the canvas to a frame. This bolt through attachment allows you to press the Super Ring and attachment into the canvas. A 6,5mm (1/4") hole in the bolt through attachment allows it to be bolted to the frame.



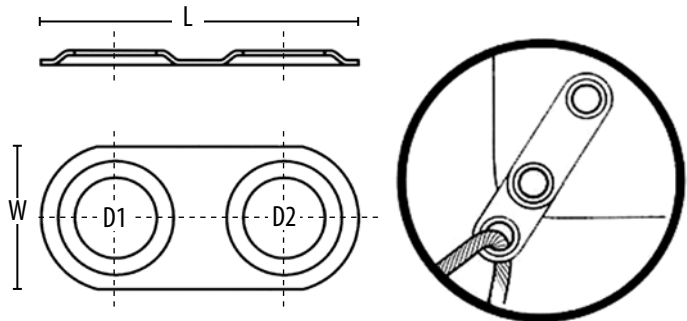
Part no	Product description	Dimensions [mm]				
		A	B	ØC	ØD	E
<b>SUPER GRIP Wire/Rope Attachments</b>						
1012-940	Super Grip Wire/Rope attachment for SR14L	30	75	16,5	6,0	33
1014-940	Super Grip Wire/Rope attachment for SR20LD	44	95	25,0	6,0	40
1012-950	Super Grip Multipurpose attachment for SR14L	30	66	16,5	16	35
1014-950	Super Grip Multipurpose attachment for SR20LD	44	95	25,0	26	50
1012-970	Super Grip Bolt through attachment for SR14L	30	66	16,5	6,5	35
1014-970	Super Grip Bolt through attachment for SR20LD	44	75	25,0	8,5	38

All Super Grip attachments are packed per piece.

## Super Grip Connectors

### Super Grip Connector 10XX-90X

Available in different lengths, this connector combines multiple rings to absorb loads at specific points. It is also used to line tent edges, or to provide reinforced holes along edges so a tent or membrane may be bolted to a structure.

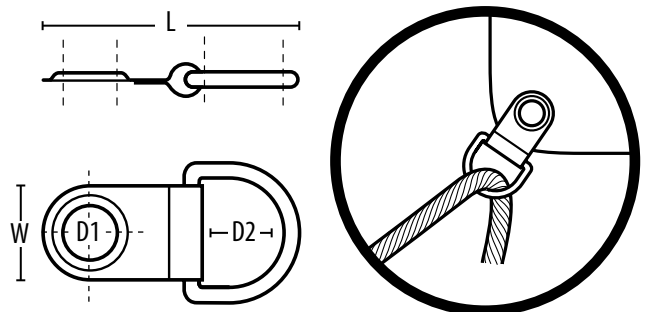


Part no	Product description	Dimensions [mm]				Fit SR ref #
		L	W	D1	D2	
<b>SUPER GRIP Connectors</b>						
1012-900	Super Grip Connector for SR14	66	30	16,5	16,5	SR14/14L
1012-904	Super Grip Connector for SR14	102	30	16,5	16,5	SR14/14L
1012-906	Super Grip Connector for SR14L	182	30	16,5	16,5	SR14/14L
1014-900	Super Grip Connector for SR20LD	95	44	25	25	SR20LD
1014-906	Super Grip Connector for SR20LD	195	44	25	25	SR20LD

## Super Grip D-ring, hinged

### Hinged multipurpose D-ring 10XX-920

A universal hinge developed for a multitude of different fittings to be inserted. The inserted fittings will be fully hinged to align with attached lines, wires etc. Examples of such fittings are SS D-rings, triangles etc.



Part no	Product description	Dimensions [mm]				Fit SR ref #
		L	W	D1	D2	
<b>SUPER GRIP D-ring, hinged</b>						
1012-920	Super Grip Hinged D-ring	75	30	16,5	30	SR14/14L
1014-920	Super Grip Hinged D-ring	95	44	25	30	SR20LD

All Super Grip attachments are packed per piece.



## MAINSAIL SYSTEM

Rutgerson's mainsail system has web-on single headboard plates accompanied by a complete range of headboard cars and battcars to cover the boat segment up to 60ft.

Besides a new bigger battcar, the new system also incorporates our existing battcar range, and will from now on easily be divided into three different application areas in sizes up to 60ft monohull and 47ft multihull.

Instead of having headboards, liners, tools and occasional rivets, you now only need to purchase one single item for your top section.

This added value means:

- Less articles in stock
- Less capitalization in stock
- Faster assembly time
- A more user and service friendly product



System B



System A



Limousine System C

### Mainsail system A-C Application chart

System	Car system	Monohull	Equivalent sail area	Multihull	Equivalent sail area
A	1530/1531	Up to 38ft	40m <sup>2</sup> / 430ft <sup>2</sup>	Up to 31ft	28m <sup>2</sup> / 300ft <sup>2</sup>
B	1535	Up to 47ft	55m <sup>2</sup> / 590ft <sup>2</sup>	Up to 38ft	40m <sup>2</sup> / 430ft <sup>2</sup>
C	1540	Up to 60ft	80m <sup>2</sup> / 860ft <sup>2</sup>	Up to 47ft	55m <sup>2</sup> / 590ft <sup>2</sup>

## HEADBOARD APPLICATION

The web on headboard plates are manufactured in anodized aluminium, and are easily attached to the to section by standard webbing sizes. All slots and outer edges are rounded to prevent chafing and both halyard and car attachment holes have pre-pressed stainless steel liners. In racing applications where weight saving and strength plays a significant role, all plates can be custom made in carbon fibre with titanium liners upon request.



System A fathead



System A Monohull



System B fathead



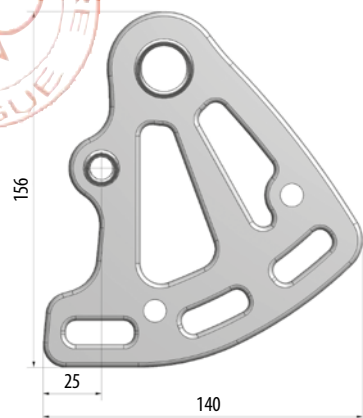
System B Monohull



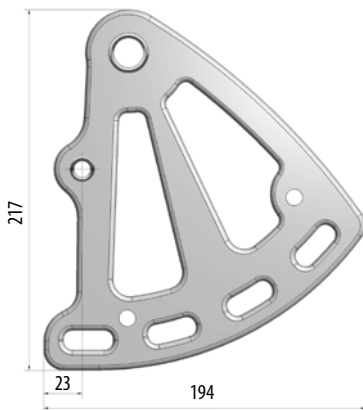
System C fathead



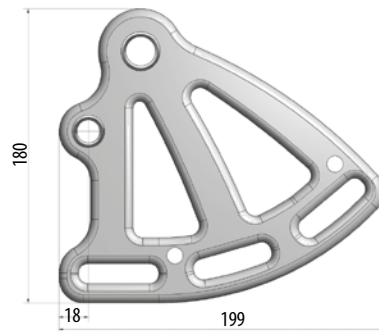
System C Monohull



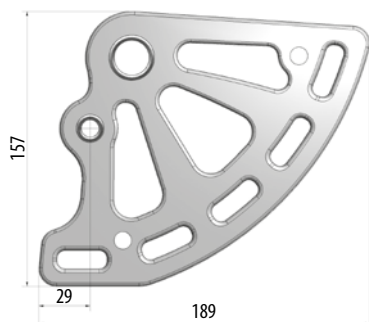
A1



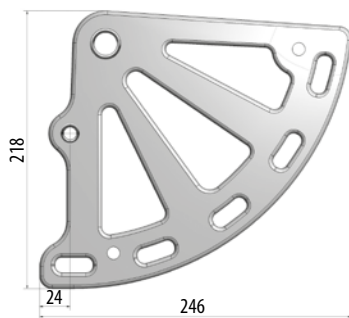
B1



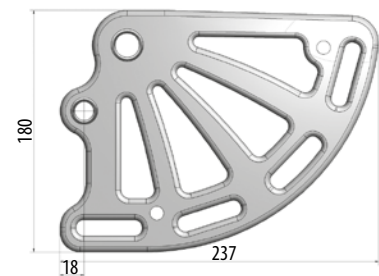
C1



A2



B2



C2

## Headboard Application & Specification chart

Part No	Product description	Aspect ratio	Thickness [mm]	Weight [g]	Vertical SWL [kg]	Webbing slots [mm]	Halyard Ø [mm]	Car pin Ø [mm]	Packed per
A1-B	Monohull headboard A1-Black	40 deg	4	120	850	3 x 30	19	9,5	1
A1-S	Monohull headboard A1-Silver	40 deg	4	120	850	3 x 30	19	9,5	1
A2-B	Multihull and Fat headboard A2-Black	90 deg	4	160	850	5 x 30	19	9,5	1
A2-S	Multihull and Fat headboard A2-Silver	90 deg	4	160	850	5 x 30	19	9,5	1
B1-B	Monohull headboard B1-Black	40 deg	6	295	1350	4 x 30	19	9,5	1
B1-S	Monohull headboard B1-Silver	40 deg	6	295	1350	4 x 30	19	9,5	1
B2-B	Multihull and Fat headboard B2-Black	90 deg	6	350	1350	5 x 30	19	9,5	1
B2-S	Multihull and Fat headboard B2-Silver	90 deg	6	350	1350	5 x 30	19	9,5	1
C1-B	Monohull headboard C1-Black	40 deg	10	485	2800	3 x 40	19	13,5	1
C1-S	Monohull headboard C1-Silver	40 deg	10	485	2800	3 x 40	19	13,5	1
C2-B	Multihull and Fat headboard C2-Black	90 deg	10	600	2200	4 x 40	19	13,5	1
C2-S	Multihull and Fat headboard C2-Silver	90 deg	10	600	2200	4 x 40	19	13,5	1

## QFF Quick Flex Fitting HEADBOARDS, for liner fastening

The QFF headboard are available in a wide range of sizes to cover the required range of mainsails for boats up to approximately 50ft.

Available in both black and silver 25mm anodized aluminium, this standard fitting only requires liners and no additional rivets. This makes the assembly of the boards quick and easy, which saves valuable time in sailmakers production by being more efficient. As all boards can be turned to make any straight side the vertical top side, this product will also decrease product variances in stock.

Webbing to add strength and/or spreading loads can be applied through the liners if necessary.  
For liners, see page 23.



1115-121S



1115-070S



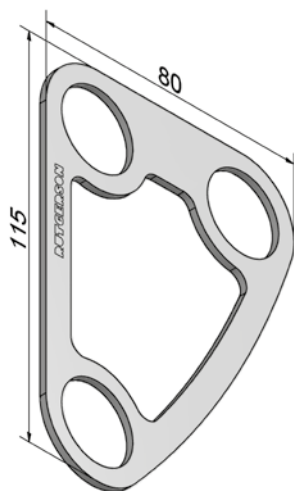
1115-150S



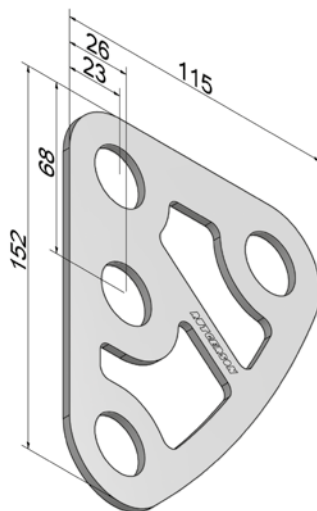
1115-115S



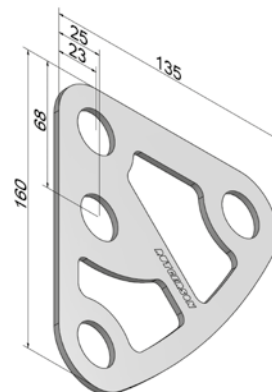
1115-175S



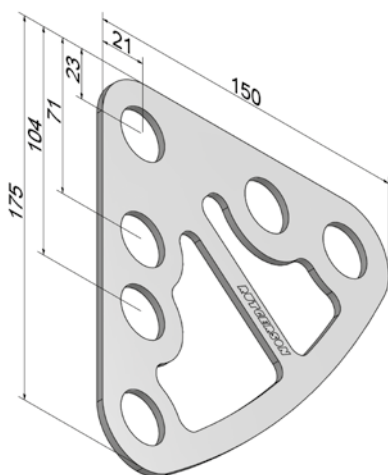
1115-070X



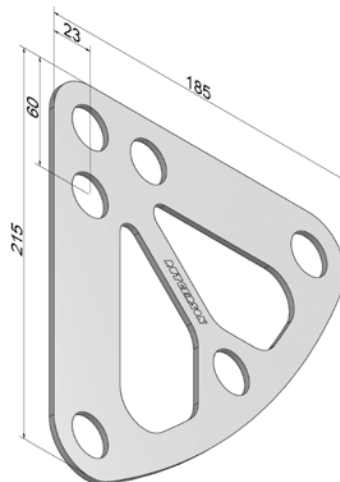
1115-115X



1115-121X



1115-150X



1115-175X

Part no	Product description	Dimensions [mm]			Liners required	Packed per
		Length	Height	Thickness		
<b>QFF Quick Flex Fitting Headboards, liner fastening</b>						
1115-070S	QFF Headboard 115x80x2mm, Silver	80	115	2	3 x 19	10
1115-070B	QFF Headboard 115x80x2mm, Black	80	115	2	3 x 19	10
1115-115S	QFF Headboard 151x115x3mm, Silver	115	152	3	3 x 19	10
1115-115B	QFF Headboard 151x115x3mm, Black	115	152	3	3 x 19	10
1115-121S	QFF Headboard 160x135x3mm, Silver	135	160	3	3 x 19	10
1115-121B	QFF Headboard 160x135x3mm, Black	135	160	3	3 x 19	10
1115-150S	QFF Headboard 175x150x3mm, Silver	150	175	3	4 x 19	4
1115-150B	QFF Headboard 175x150x3mm, Black	150	175	3	4 x 19	4
1115-175S	QFF Headboard 215x185x3mm, Silver	185	215	3	4 x 19	4
1115-175B	QFF Headboard 215x185x3mm, Black	185	215	3	4 x 19	4



## HEADBOARDS, for rivet fastening

These regular headboards for rivet fastening have webbing slots along the luff side for web-on applications. The 1101-135 is made extremely light for usage in dinghies, where weight saving is crucial. Rivets and liners, see page 22-23



1101-135



1102-075



1102-090



1102-115



1102-135  
1103-135



1103-160

Part no	Product description	Dimensions [mm]			Liners required	Rivets required	Packed per
		Top width	Luff height	Thickness			
<b>HEADBOARDS, for rivet fastening</b>							
1101-135	Headboard 135x185x1,5mm	135	185	1,5	3 x 14	26	10
1102-075	Headboard 75x103x2mm	75	103	2,0	1 x 19	9	10
1102-090	Headboard 90x120x2mm	90	120	2,0	1 x 19	10	10
1102-115	Headboard 112x140x2mm	112	140	2,0	1 x 19	21	10
1102-135	Headboard 185x135x2mm	185	135	2,0	1 x 19	32	10
1103-135	Headboard 185x135x3mm	185	135	3,0	1 x 19	32	10
1103-160	Headboard 160x220x3mm	160	220	3,0	1 x 19	45	10



## One-Design HEADBOARDS, for rivet fastening

These two headboards suit a lot of One-Designs. Rivets and liners, see page 22-23



1102-112



1102-113

Part no	Product description	Dimensions [mm]			Liners required	Rivets required	Packed per
		Top width	Luff height	Thickness			
<b>One-Design HEADBOARDS, for rivet fastening</b>							
1102-112	One-Design Headboard 112x140x2mm	112	140	2,0	1 x 19	11	10
1102-113	One-Design Headboard 112x140x2mm	112	140	2,0	3 x 19	11	10

## Heavy Duty HEADBOARDS

These Heavy-Duty headboards are mainly aimed for cruising yachts, and especially for fully battened mainsails. The top shape of the headboards prevents them from being hooked in the backstay when tacking. Rivets and liners, see page 22-23



1120-210



1120-170



1120-125

Part no	Product description	Dimensions [mm]			Liners required	Rivets required	Packed per
		Top width	Luff height	Thickness			
<b>Heavy Duty HEADBOARDS</b>							
1120-125	Heavy Duty Headboard Small	125	140	2,5	4 x 19	11	2
1120-170	Heavy Duty Headboard Medium	170	195	3,0	4 x 19	12	2
1120-210	Heavy Duty Headboard Large	210	230	4,0	5 x 19	13	2

## FFC Flex Fitting Composite HEADBOARDS

The FFC Flex Fitting Composite headboard is available in a wide range of sizes and thicknesses, and is a cost efficient solution for dinghy and One-Design applications. These headboards are made in a strong polyamide composite material. Rivets and liners, see page 22-23



1104-90



1105-090



1105-115



1105-135

Part no	Product description	Dimensions [mm]			Liners required	Rivets required	Packed per
		Top width	Luff height	Thickness			
<b>FFC Flex Fitting Composite Headboards</b>							
1104-090	FFC Composite Headboard #1	70	90	2,0	1 x 14	7	10
1105-090	FFC Composite Headboard #2	70	90	2,0	1 x 14	7	10
1105-115	FFC Composite Headboard #3	100	115	3,0	3 x 14	8	10
1105-135	FFC Composite Headboard #4	115	135	4,0	3 x 19	14	10



## QFI Quick Fitting Inverted ST-jib CLEWBOARDS, for liner fastening



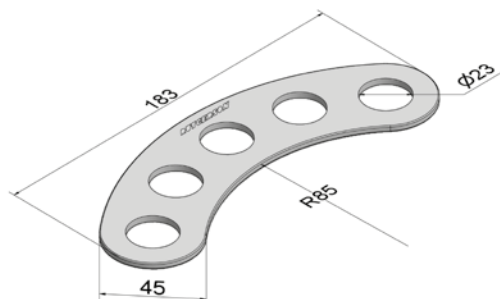
1191-018S



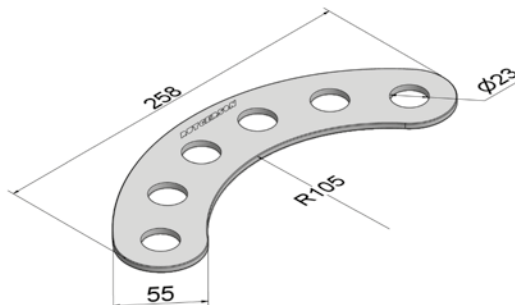
1191-025S



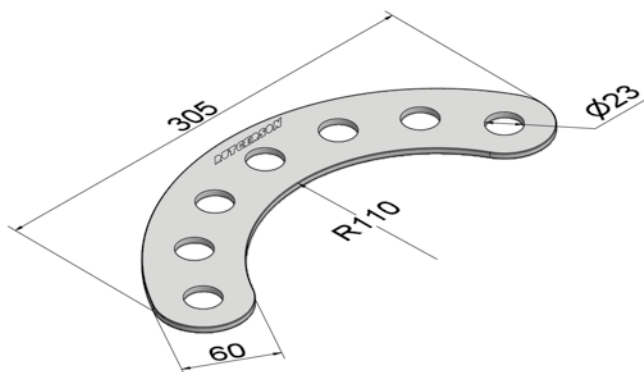
1191-030S



1191-018X



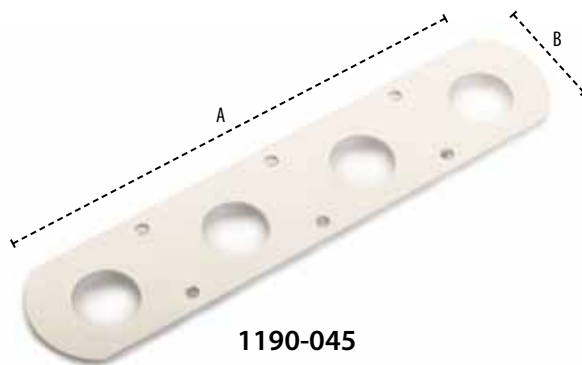
1191-025X



1191-030X

Part no	Product description	Dimensions [mm]			Liners required	Packed per
		Length	Width	Thickness		
<b>QFI Quick Fitting Inverted CLEWBOARDS, liner fastening</b>						
1191-018S	QFI Clewboard #3 Silver	183	45	3,0	5 x 19	2
1191-018B	QFI Clewboard #3 Black	183	45	3,0	5 x 19	2
1191-025S	QFI Clewboard #2 Silver	258	55	3,0	6 x 19	2
1191-025B	QFI Clewboard #2 Black	258	55	3,0	6 x 19	2
1191-030S	QFI Clewboard #1 Silver	305	60	4,0	7 x 19	2
1191-030B	QFI Clewboard #1 Black	305	60	4,0	7 x 19	2

## ST-jib CLEWBOARDS, for rivet fastening



Part no	Product description	Dimensions [mm]			Liners required	Rivets required	Packed per
		A	B	Thickness			
<b>CLEWBOARDS, for rivet fastening</b>							
1190-045	Clewboard #1	220	45	2,0	4 x 19	6	10
1190-050	Clewboard #3	190	50	2,0	5 x 14	5	10
1190-070	Clewboard #2	230	70	2,0	5 x 14	14	10
1190-080	Clewboard inverted	275	75	2,0	6 x 14	15	10
1190-090	Clewboard #9	260	90	3,0	5 x 19	14	10



## FASTENERS & TOOLS for Head- and Clewboards

### Rivets and closing tools

AISI 316 Stainless Steel hollow tubular and Aluminium solid rivets for headboards and clewboards.  
Rutgerson rivets should only be pressed with Rutgerson closing tool for rivets.



SS Rivets  
2140-XX



Aluminium Rivets  
2141-XX

Part no	Product description	Dimensions [mm]		Packed per / minimum order qty.
		Outer Ø	Length	
<b>RIVETS, Hollow tubular SS AISI 316 for Head- and Clewboards</b>				
2140-06	Rivet, tubular SS 6mm	4,5	6	500pcs
2140-07	Rivet, tubular SS 7mm	4,5	7	500pcs
2140-08	Rivet, tubular SS 8mm	4,5	8	500pcs
2140-09	Rivet, tubular SS 9mm	4,5	9	500pcs
2140-10	Rivet, tubular SS 10mm	4,5	10	500pcs
2140-11	Rivet, tubular SS 11mm	4,5	11	500pcs
2140-12	Rivet, tubular SS 12mm	4,5	12	500pcs
2140-14	Rivet, tubular SS 14mm	4,5	14	500pcs
2140-16	Rivet, tubular SS 16mm	4,5	16	500pcs
<b>RIVETS, Solid Aluminium for Head- and Clewboards</b>				
2141-12	Rivet, solid Alu 12mm	5,0	12	250pcs
2141-14	Rivet, solid Alu 14mm	5,0	14	250pcs
2141-16	Rivet, solid Alu 16mm	5,0	16	250pcs
2141-20	Rivet, solid Alu 20mm	5,0	20	250pcs
<b>CLOSING TOOLS for Rivets</b>				
1240	Closing tool for 4,5mm tubular SS rivets			Set
1230	Closing tool for 5mm solid Alu rivets			Pc

Closing tool 1240 for hollow tubular rivets consists of two parts, and should be used in a hydraulic, fly, toggle or cam operated press. The lower tool part has a spring loaded center part to guide rivets during press operations.



Part no 1240: Closing tool for 4,5mm Hollow tubular SS Rivets



Part no 1230: Closing tool for 5mm Solid Alu Rivets

## Liners

AISI 316 Stainless Steel liners and Closing tools for headboards and clewboards.  
All liners must be pressed with Rutgerson liner closing tools.



Part no	Product description	Dimensions [mm]			Packed per / minimum order qty.
		Length	Inner Ø	Outer Ø	
<b>LINERS, SS AISI 316 for Head- and Clewboards</b>					
1250-14	Liner 14mm #1	15,0	14,0	16,0	20
1250-142	Liner 14mm #2	19,0	14,0	16,0	20
1250-194	Liner 20mm #1	16,0	20,0	22,0	20
1250-193	Liner 20mm #2	19,0	20,0	22,0	20
1250-19	Liner 20mm #3	22,0	20,0	22,0	20
1250-192	Liner 20mm #4	26,5	20,0	22,0	20
<b>CLOSING TOOLS for Liners</b>					
1260-14	Closing tool for 14mm Liners				Set
1260-19	Closing tool for 20mm Liners				Set

The tools should be replaced every 10 000 presses if proper maintenance has been performed.



1260-XX Closing tools for liners

## CLEWBLOCKS

Rutgerson's Clewblocks come with 60mm, 80mm or 100mm removable acetal sheave and are available in both silver and black 25 µm anodized cheek plates. The webbing slots are smoothly rounded in order to prevent chafe for maximum durability, and the appliance angles of the slots have been improved to better line up with the aspect ratio of the sail.

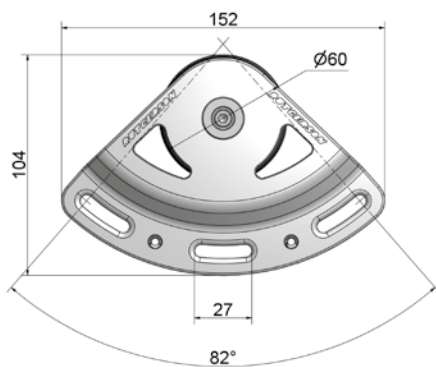
The sheave can easily be removed by unscrewing the M5 bolt that assembles the construction through a SS socket.



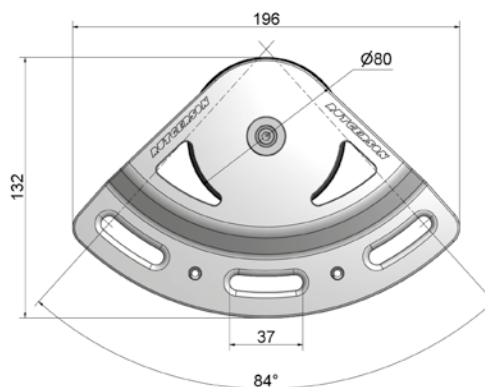
1692-060B



1692-060S



1692-060X



1692-080X

Part no	Product description	General Dimensions & Properties			For webbing width	Max rope Ø	Approx SWL	Packed per
		Sheave material	Sheave Ø	Cheek plate thickness				
<b>CLEWBLOCKS</b>								
1692-060S	Clewblock 60, Silver	Composite	60mm	3mm	30mm	12mm	1200kg	Pc
1692-060B	Clewblock 60, Black	Composite	60mm	3mm	30mm	12mm	1200kg	Pc
1692-080S	Clewblock 80, Silver	Composite	80mm	4mm	40mm	16mm	1650kg	Pc
1692-080B	Clewblock 80, Black	Composite	80mm	4mm	40mm	16mm	1650kg	Pc
1692-100S	Clewblock 100, Silver	Composite	100mm	4mm	40mm	16mm	3000kg	Pc
1692-100B	Clewblock 100, Black	Composite	100mm	4mm	40mm	16mm	3000kg	Pc



## BLOCKS

The Rutgerson block assortment is unique in its design and functionality. The key to its success is that both the sheave and the cheeks are produced from a high-tech composite material of such a great strength that no stainless steel reinforcement is needed. Consequently, the overall weight is dramatically reduced. The new material has “smooth touch” properties and the work load is clearly marked in order to avoid uncertainty.

Spherical plain bearings are used for our assortment, which render the blocks very strong and completely maintenance free. Plain bearings will never deform under static high loads like ball bearings and our blocks do not require the initial excess of power for the sheave to start moving, which is a common problem with ball bearing blocks.



Single block



Webbing block

### Blocks

Part no	Product description	Sheave Ø [mm]	Length [mm]	Shackle pin Ø [mm]	Safe working load [kg]	Breaking load [kg]	Rope diameter [mm]	Weight [gr]
<b>Single blocks</b>								
B300301B	Single 35	35	55	4	450	850	3 - 8	50
B300501B	Single 50	50	80	5	700	1250	4 - 12	116
B300601B	Single 60	60	94	6	1150	2100	6 - 14	205
B300801B	Single 80	80	130	10	2000	3600	6 - 14	557

<b>Webbing blocks</b>								
B300305B	Single 35 with strap head	35	55	-	450	850	3 - 8	35
B300505B	Single 50 with strap head	50	80	-	700	1250	4 - 12	163
B300605B	Single 60 with strap head	60	94	-	1150	2100	6 - 14	140
B300805B	Single 80 with strap head	80	130	-	2000	3600	6 - 14	333



## BATTEN FITTINGS

Rutgerson's 1490 batten fitting system is a cost efficient and flexible solution for fully battened applications. Available for both knock-on shackle or battcar applications.



Batten Fitting 1490-1G with Battcar 1530-11-03



1490-G



1490-1G



1490



1490-1

Part no	Product description	Dimensions [mm]		Max width flat batten [mm]	Max $\varnothing$ round batten [mm]	Weight [gr]	Fits battcar ref #	Packed per
		Length	Width					
<b>BATTEN FITTINGS</b>								
1490G	Batten fitting 1490G	84	63	45	12	63	1525 1526	10
1490-1G	Batten fitting 1490-1G, cut to fit swivel	84	63	45	12	45	1530-XX-03 1531-XX-03 1530-XX-15	10
1490	Batten fitting 1490	84	63	45	12	63	1525 1526	10
1490-1	Batten fitting 1490-1, cut to fit swivel	84	63	45	12	45	1530-XX-03 1531-XX-03 1530-XX-15	10

## BATTEN RECEPTACLES

Rutgerson adjustable batten receptacles are manufactured in a highly durable, UV resistant composite material and can be used with all M10 threaded battcars and bolts.

For boatsizes of 25-36ft, the 1580 is constructed to retain both flat and round full battens up to 30mm width and Ø10mm respectively.



1580

For boatsizes of 33-50ft, the 1590 with tensioning system is constructed to retain flat full battens up to 40x6mm and the 1595 with aluminium tensioner especially for Blue Streak and thicker battens up to 25x10mm.



1590

The batten receptacle 1596 is suitable for boatsizes of 33-50ft, with a tensioning system for round battens up to Ø12mm.



1596



1595

Part no	Product description	Dimensions [mm]		Max width flat batten [mm]	Max round batten [mm]	Weight [gr]	Fits battcar ref #	Packed per
		Length	Width					
<b>FULL BATTEN RECEPTACLES</b>								
1580	Batten receptacle 1580	110	49	20 x 4 30 x 6 20 x 10	10	120	1530-XX-05 1531-XX-05 1535-XX-05	10
1590	Batten receptacle 1590	145	78	40 x 6		185	1530-XX-05 1531-XX-05 1535-XX-05	10
1595	Batten receptacle 1595	145	78	25 x 10		221	1530-XX-05 1531-XX-05 1535-XX-05	10
1596	Batten receptacle 1596	145	78		12	232	1530-XX-05 1531-XX-05 1535-XX-05	10
1610	Batten receptacle 1610, M10	153	67	34 x 14	22	475	1530-XX-05 1531-XX-05 1535-XX-05	1
1612	Batten receptacle 1612, M12	153	67	34 x 14	22	475	1540-23-05	1



## LIMOUSINE BATTEN RECEPTACLE 1600

The batten receptacle 1600 is a new innovative product made of anodised black aluminium that is part of the Limousine Mainsail System. This batten receptacle targets boats up to approximately 70ft monohull and 60ft multi-hull, depending on the batten stiffness.

The batten receptacle is completely unique on the global marine market due to a snap function, which means that no tools are required to remove the sliding lid. The necessity of such a solution was discovered due to in-house sailing experience among our technical designers. With the snap function-innovation the batten receptacle becomes very user-friendly to sailors, which in turn makes sailing more effortless. Additionally, it has an elegant design without screws or sharp edges.

Our product offers several benefits to sail makers as it is the easiest batten receptacle to mount onto the sail. Extensive savings can be made in terms of time and effort, especially since bigger and heavier sails are more difficult to work with.

Another beneficial aspect is that both round and flat battens fit the receptacle. For further details about the batten dimensions, please see the table on the previous page.

1600 is also available with titanium screws. Part no 1610T and 1612T



## MAINSAIL HEADBOARD CARS

The headboard cars in black anodized aluminium are robust and easily attached to the corresponding headboard. The system is constructed with either two or three cars that easily can be disassembled from the cheek plate with a retractable circlip on system A and B or Allen key on system C. The initial version of the headboard cars has been upgraded with jointed battcars. The battcars can now move horizontally as well vertically, which means that the Rutgerson headboard cars can more easily enter the track gate and thusly fit most mast makers and dimensions.

Rutgerson is now filling the gap in the boat segment up to 60ft through the addition of another battcar size, the Limousine 1540. Available in 23mm profile width, this battcar will cover the majority of the larger spar sections from mast makers available on the market, such as HA91 profiles. It is manufactured in aluminium from a solid extrusion profile, which makes it extremely strong in order to withstand the loads developed in these conditions.

The new battcar is available in two versions. The 1540-23-05 with M12 stainless steel thread for full batten applications and a high tech composite intermediate version for 25mm webbing applications with product number 1528-23.



System A



System B



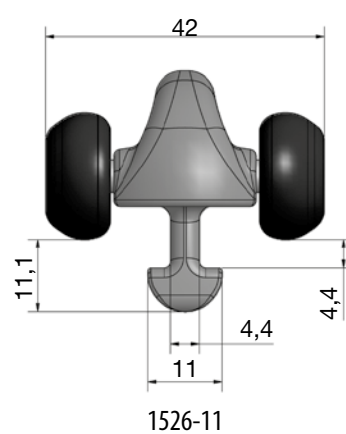
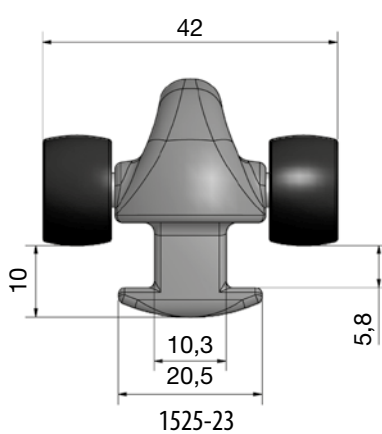
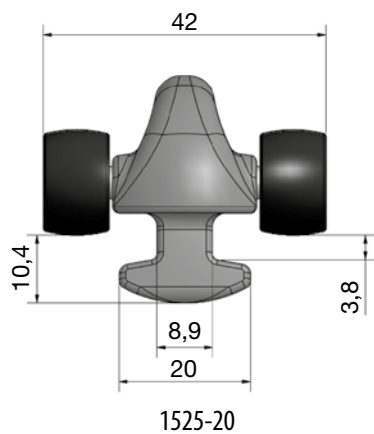
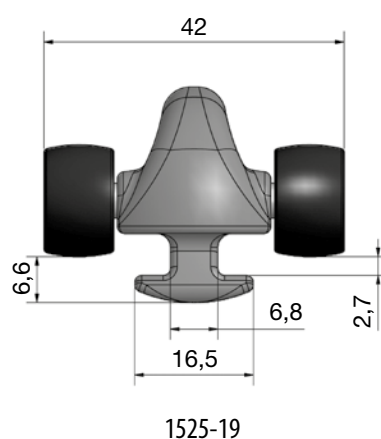
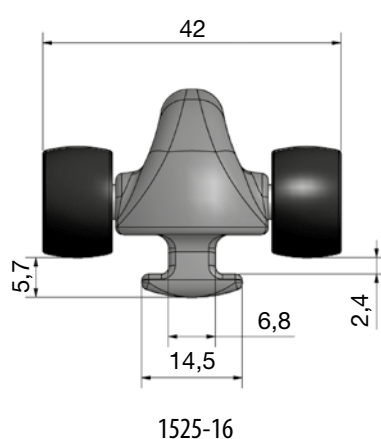
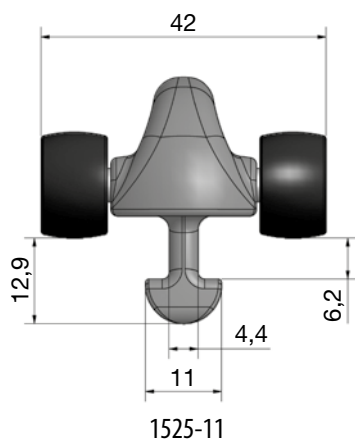
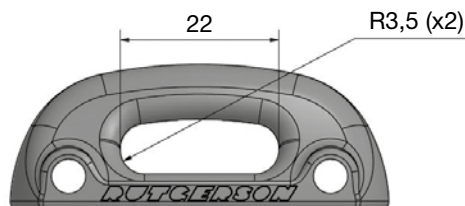
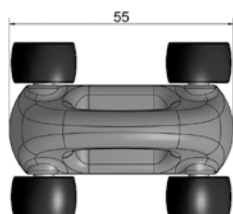
System C

### Headboard car Application & Specification chart

Part No	Product description	Car system	Headboard plate	Weight [g]	Horizontal SWL [kg]
A111	Headboard car A111, 11mm	2 x 1530-11	A1 or A2	230	585
A111HL	Headboard cars A111, 11mm high load	2 x 1535-11	A1 or A2	230	650
A112	Headboard car A112, 11mm big wheels	2 x 1531-11	A1 or A2	230	585
A112HL	Headboard car A112, 11mm big wheels and high load	2 x 1536-11	A1 or A2	230	650
A16	Headboard car A16, 16mm	2 x 1530-16	A1 or A2	230	585
A19	Headboard car A19, 19mm	2 x 1530-19	A1 or A2	230	585
A20	Headboard car A20, 20mm	2 x 1530-20	A1 or A2	230	585
A23	Headboard car A23, 23mm	2 x 1530-23	A1 or A2	230	585
B11	Headboard car B11, 11mm	3 x 1535-11	B1 or B2	357	685
B20	Headboard car B20, 20mm	3 x 1535-20	B1 or B2	357	685
B23	Headboard car B23, 23mm	3 x 1535-23	B1 or B2	357	685
C23	Headboard car C23, 23mm	2 x 1540-23	C1 or C2	740	1385



## PRESSURE ABSORBING SLIDES



Part no	Product description	Wheel Ø [mm]	Recommended fitting	Packed per
1525-11	Pressure absorbing slide 11mm	15,5	1490, 1490G or Webbing	10
1525-16	Pressure absorbing slide 16mm	15,5	1490, 1490G or Webbing	10
1525-19	Pressure absorbing slide 19mm	15,5	1490, 1490G or Webbing	10
1525-20	Pressure absorbing slide 20mm	15,5	1490, 1490G or Webbing	10
1525-23	Pressure absorbing slide 23mm	15,5	1490, 1490G or Webbing	10
1526-11	Pressure absorbing slide 11mm (big wheels)	19,5	1490, 1490G or Webbing	10
1526-16	Pressure absorbing slide 16mm (big wheels)	19,5	1490, 1490G or Webbing	10

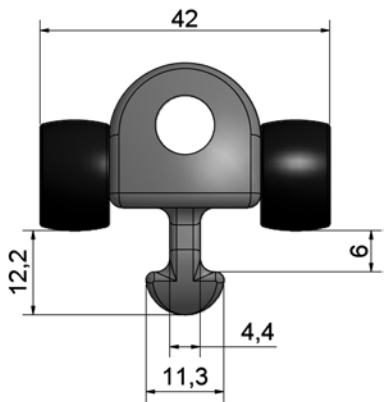
All pressure absorbing slides have a tolerance of 0,5mm

## BATTCARS

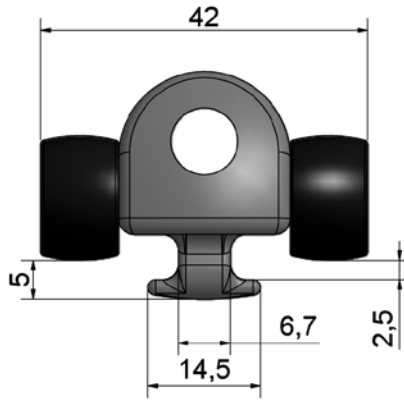
The Rutgerson Battcar solution has proven to be a winner for sailors on all oceans and in all environments. Available for a wide variety of mast applications, this fullbatten car makes the mainsail safer and simpler to handle and trim whilst sailing by requiring minimum maintenance, and is easy to hoist and lower.

All Rutgerson Battcars have a tolerance of 0,5mm.

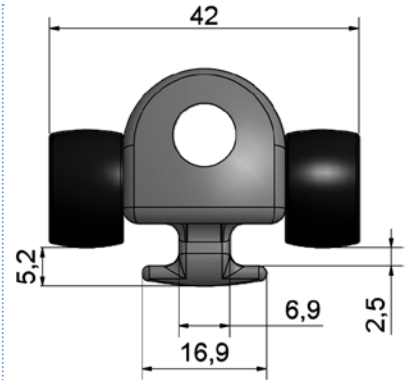
### Battcar general dimensions



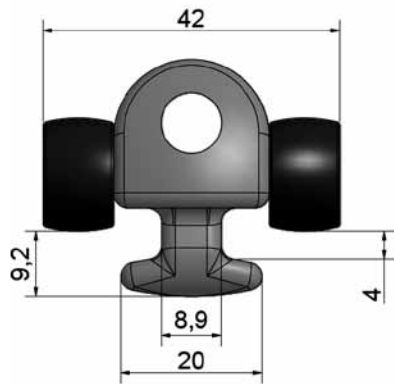
Body  
1530-11-XX & 1535-11-XX



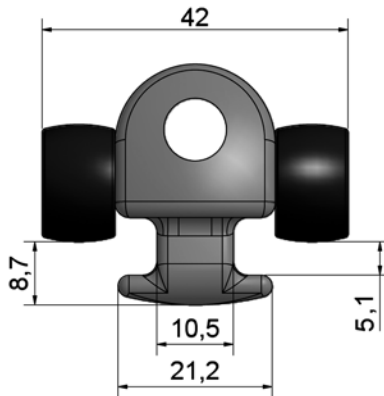
Body  
1530-16-XX



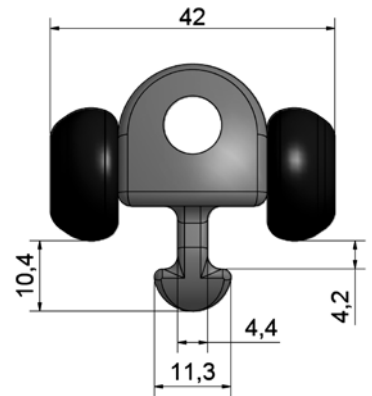
Body  
1530-19-XX



Body  
1530-20-XX



Body  
1530-23-XX & 1535-23-XX



Body  
1531-11-XX

Please see page 32 for help guide and mast selection guide



## Pressure absorbing Slide & Battcar Mast Selection Guide

		Rutgerson Battcar ref # →						
		1525-11 1530-11-XX 1535-11-XX	1525-16 1530-16-XX	1525-19 1530-19-XX	1525-20 1530-20-XX	1525-23 1530-23-XX 1535-23-XX	1526-11 1531-11-XX 1536-11-XX	1528-23 1540-23-XX
Mast Supplier ref #	Equivalent Holt Allen		HA89	HA90		HA91		
	Sparcraft	F135, F195, F305, F385, F460, I620, S622, I830, S830				NG60, NG70, NG80, NG86, F580, F740, F1060, F1395, S1630, S2100, F2390, F3360, F4600	F35, F50, F67, F78, F101, S137, S180, S260, S330, IMS80, IMS256	NG60, NG70, NG80, NG86, NG105, F580, F740, F1060, F1395, F2390, F3360, F4600
	Seldén	1335 <sup>1)</sup>			C156, C175, C193, C211, C227, C245, C264, C285, C304			
	John Mast	135D, 148D, 150D, 165D, 167D, 185D, 186D, 208D, 222D, 245D, 280D, 305D, 335D				220E, 262E, 290E	150E, 116E, 125E	220E, 262E, 290E
	Z Spars	Z301, Z351, Z380, Z401, Z501, Z531, Z601, Z602, Z701, Z702				Z902, Z1001, Z1250, Z1400	Z170, Z190, Z230, Z265	Z1001, Z1250, Z1400
	Soromap	NF200, NF270, NF350, NF430, NF540, NF710, NF1410						

Note: For application in monohull mainsails >50m<sup>2</sup> (592sq ft.) use the High Load Battcar versions with reference no 1535-XX-XX. It is also mandatory to apply all Rutgerson battcars with the assembly screw pointing upwards in the mast gate. It is not recommended to use any of Rutgerson Battcars in mainsails >80m<sup>2</sup> (861sq ft.).

1) If the Seldén mast is equipped with a sail entry gate with a cassette with tongue and rubber spring pad, it has to be converted to a track gate insert for fullbatten sails (Seldén part no 505-516-01, 505-524-01)

For information regarding applications in other mast sections than the above specified, please contact Rutgerson or your local distributor.



## Pressure Absorbing slide & Battcar help guide

How to choose the right slide or battcar ref number for your purpose?

### Pressure absorbing slide reference:

1. Choose batten fitting on Page 26.
2. Choose body ref no depending on mast section in the selection guide on Page 32

Wheel size reference no	
5	Standard wheel version
6	Bigger wheel version

Body reference no		For batten fitting
11	Pressure absorbing slide 11mm	1490 and 1490G
16	Pressure absorbing slide 16mm	1490 and 1490G
19	Pressure absorbing slide 19mm	1490 and 1490G
20	Pressure absorbing slide 20mm	1490 and 1490G
23	Pressure absorbing slide 23mm	1490 and 1490G

1 5 2 X - XX

### Battcar reference:

1. Choose batten fitting/receptacle on Page 26-27.
2. Choose application ref no depending on fitting/receptacle on Page 34-39.
3. Choose body ref no depending on mast section in the selection guide on Page 32.

Material or wheel size reference no	
0	Standard wheel and material version
1	Bigger wheel and standard material version
5	Standard wheel and high load material version
6	Bigger wheel and high load material version

Application reference no		For batten Fitting or Receptacle
03	Battcar with swivel	1490 and 1490G
05	Battcar with SS M10 thread	1580, 1590 and 1595
09	Battcar with SS M10 thread (extended)	1580, 1590 and 1595
10	Intermediate battcar	-
15	Battcar with SS fork (no swivel)	1490-1 and 1490-1G

1 5 3 X - XX - XX

Body reference no	
11	Battcar body 1530-11-XX, 1531-11-XX and 1535-11-XX
16	Battcar body 1530-16-XX and 1531-16-XX
19	Battcar body 1530-19-XX
20	Battcar body 1530-20-XX
23	Battcar body 1530-23-XX and 1535-23-XX



## Battcar 153X-XX-03 Application Guide



1530-11-03

Part no	Approx. Push BL [kg]	Approx. Pull BL [kg]
1530-11-03	290	260
1530-16-03	290	260
1530-19-03	290	260
1530-20-03	290	260
1530-23-03	290	260

Part no	Product description	Body ref #	Wheel Ø [mm]	Adaptor material	Recommended Receptacle / Fitting	Slot width (bolt/shackle) [mm]	Packed per
<b>BATTCAR 1530-XX-03 with swivel</b>							
1530-11-03	Battcar, 11mm with swivel	1530-11-XX	15,5	Aluminium	1490-1 1490-1G	44	10
1530-16-03	Battcar, 16mm with swivel	1530-16-XX	15,5	Aluminium	1490-1 1490-1G	44	10
1530-19-03	Battcar, 19mm with swivel	1530-19-XX	15,5	Aluminium	1490-1 1490-1G	44	10
1530-20-03	Battcar, 20mm with swivel	1530-20-XX	15,5	Aluminium	1490-1 1490-1G	44	10
1530-23-03	Battcar, 23mm with swivel	1530-23-XX	15,5	Aluminium	1490-1 1490-1G	44	10
1531-11-03	Battcar, 11mm with swivel (big wheels)	1531-11-XX	19,5	Aluminium	1490-1 1490-1G	44	10
1531-23-03	Battcar, 23mm with swivel (big wheels)	1531-23-XX	19,5	Aluminium	1490-1 1490-1G	44	10

## Battcar 153X-XX-05 Application Guide



1530-11-05



High Load version  
1535-11-05

Part no	Approx. Push BL [kg]	Approx. Pull BL [kg]
1530-11-05	550	350
1530-16-05	550	400
1530-19-05	550	420
1530-20-05	550	430
1530-23-05	550	450
1531-11-05	575	350
1535-11-05	785	450
1535-23-05	900	575

Part no	Product description	Body ref #	Wheel $\varnothing$ [mm]	Adaptor material	Recommended Receptacle / Fitting	Slot width (bolt/shackle) [mm]	Packed per
<b>BATTCAR 153X-XX-05 with M10 stainless steel thread</b>							
1530-11-05	Battcar, 11mm with M10 thread	1530-11-XX	15,5	SS	1580, 1590, 1595	30	10
1530-16-05	Battcar, 16mm with M10 thread	1530-16-XX	15,5	SS	1580, 1590, 1595	30	10
1530-19-05	Battcar, 19mm with M10 thread	1530-19-XX	15,5	SS	1580, 1590, 1595	30	10
1530-20-05	Battcar, 20mm with M10 thread	1530-20-XX	15,5	SS	1580, 1590, 1595	30	10
1530-23-05	Battcar, 23mm with M10 thread	1530-23-XX	15,5	SS	1580, 1590, 1595	30	10
1531-11-05	Battcar, 11mm with M10 thread (big wheels)	1531-11-XX	19,5	SS	1580, 1590, 1595	30	10
1531-16-05	Battcar, 16mm with M10 thread	1531-16-XX	19,5	SS	1580, 1590, 1595	30	10
1535-11-05	Battcar High Load, 11mm with M10 thread	1535-11-XX	15,5	SS	1580, 1590, 1595	30	5
1535-23-05	Battcar High Load, 23mm with M10 thread	1535-23-XX	15,5	SS	1580, 1590, 1595	30	5
1536-11-05	Battcar High Load, 11mm with M10 thread	1536-11-XX	19,5	SS	1580, 1590, 1595	30	5



## Battcar 1530-XX-09 Application Guide



1530-11-09

Part no	Approx. Push BL [kg]	Approx. Pull BL [kg]
1530-11-09	550	350
1530-16-09	550	400
1530-19-09	550	420
1530-20-09	550	430
1530-23-09	550	450

Part no	Product description	Body ref #	Wheel Ø [mm]	Adaptor material	Recommended Receptacle / Fitting	Slot width (bolt/shackle) [mm]	Packed per
<b>BATTCAR 1530-XX-09 with Extended M10 stainless steel thread</b>							
1530-11-09	Battcar, 11mm with M10 thread (extended)	1530-11-XX	15,5	SS	1580 1590 1595	45	10
1530-16-09	Battcar, 16mm with M10 thread (extended)	1530-16-XX	15,5	SS	1580 1590 1595	45	10
1530-19-09	Battcar, 19mm with M10 thread (extended)	1530-19-XX	15,5	SS	1580 1590 1595	45	10
1530-20-09	Battcar, 20mm with M10 thread (extended)	1530-20-XX	15,5	SS	1580 1590 1595	45	10
1530-23-09	Battcar, 23mm with M10 thread (extended)	1530-23-XX	15,5	SS	1580 1590 1595	45	10

## Intermediate Battcar 153X-XX-10 Application Guide



1530-11-10

Part no	Approx. Push BL [kg]	Approx. Pull BL [kg]
1530-11-10		350
1530-16-10		400
1530-19-10		420
1530-20-10		430
1530-23-10		450
1531-11-10		350
1535-11-10		450
1535-23-10		575

Part no	Product description	Body ref #	Wheel → [mm]	Adaptor material	Recommended Receptacle / Fitting	Slot width (bolt/shackle) [mm]	Packed per
<b>BATTCAR 1530-XX-10 Intermediate for webbing</b>							
1530-11-10	Battcar, 11mm intermediate	1530-11-XX	15,5	SS			10
1530-16-10	Battcar, 16mm intermediate	1530-16-XX	15,5	SS			10
1530-19-10	Battcar, 19mm intermediate	1530-19-XX	15,5	SS			10
1530-20-10	Battcar, 20mm intermediate	1530-20-XX	15,5	SS			10
1530-23-10	Battcar, 23mm intermediate	1530-23-XX	15,5	SS			10
1531-11-10	Battcar, 11mm intermediate (big wheels)	1531-11-XX	19,5	SS			10
1535-11-10	Battcar High Load, 11mm intermediate	1535-11-XX	15,5	SS			5
1535-23-10	Battcar High Load, 23mm intermediate	1535-23-XX	15,5	SS			5
1536-11-10	Battcar High Load, 11mm intermediate	1536-11-XX	19,5	SS			5



## Intermediate Battcar 153X-XX-15 Application Guide



1530-11-15

Part no	Approx. Push BL [kg]	Approx. Pull BL [kg]
1530-11-15	200	175
1530-16-15	200	175
1530-19-15	200	175
1530-20-15	200	175
1530-23-15	200	175

Part no	Product description	Body ref #	Wheel Ø [mm]	Adaptor material	Recommended Receptacle / Fitting	Slot width (bolt/shackle) [mm]	Packed per
<b>BATTCAR 1530-XX-15 with stainless steel fork (no swivel)</b>							
1530-11-15	Battcar, 11mm with fork (no swivel)	1530-11-XX	15,5	SS	1490-1 1490-1G	22	10
1530-16-15	Battcar, 16mm with fork (no swivel)	1530-16-XX	15,5	SS	1490-1 1490-1G	22	10
1530-19-15	Battcar, 19mm with fork (no swivel)	1530-19-XX	15,5	SS	1490-1 1490-1G	22	10
1530-20-15	Battcar, 20mm with fork (no swivel)	1530-20-XX	15,5	SS	1490-1 1490-1G	22	10
1530-23-15	Battcar, 23mm with fork (no swivel)	1530-23-XX	15,5	SS	1490-1 1490-1G	22	10
1531-11-15	Battcar, 11mm with fork (no swivel)	1531-11-XX	19,5	SS	1490-1 1490-1G	22	10
1535-11-15	Battcar High Load, 11mm with fork (no swivel)	1535-11-XX	15,5	SS	1490-1 1490-1G	22	5
1536-11-15	Battcar High Load, 11mm with fork (no swivel)	1536-11-XX	19,5	SS	1490-1 1490-1G	22	5

## Limousine Battcar 1540

Rutgerson is now filling the gap in the boat segment up to 60ft through the addition of another battcar size, the Limousine 1540. Available in 23mm profile width, this battcar will cover the majority of the larger spar sections from mast makers available on the market, such as HA91 profiles. It is made of aluminium from a solid extrusion profile, which makes it extremely strong in order to withstand the loads developed under these conditions.

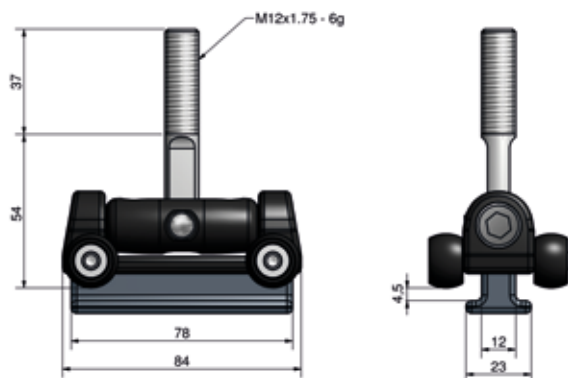
The new battcar is available in two versions. The 1540-23-05 with M12 stainless steel thread for full batten applications and a high tech composite intermediate version for 25mm webbing applications with part number 1528-23.



1528-23



1540-23-05



### Limousine Battcar 1540

Part No	Product description	Application	Weight	Profiles	Body ref #	Wheel ø [mm]	Adaptor material	Recommended Receptacle / Fitting
1540-23-05	Battcar 23mm with SS M12 thread, high load aluminium	Full batten	235	HA91	1540-23	19	SS	1612
1528-23	Pressure absorbing slide 23mm for intermediate, high load composite	Intermediate	112	HA91	1528-23	19		

Slot width (bolt/shackle) [mm]	Packed per	Approx. Push BL [kg]	Approx. Pull BL [kg]
44	1	1000	920
	1		920



## BATTENS

Pulltruded flat glass fibre battens for high durability.

Part no	Dimensions [mm]		Stiffness [gr/100mm bending]	Length [m]	Roll outer Ø [mm]	Packed per
	Width	Thickness				
<b>Glass Fibre FLAT BATTENS, Pulltruded</b>						
3915-23-100	15	2-3	360	100	1000	Pc
3922-03-100	22	3	1060	100	1000	Pc
3930-03-100	30	3	1450	100	1000	Pc
3930-04-50	30	4	3460	50	1000	Pc
3930-05-50	30	5	6780	50	1000	Pc
3940-04-50	40	4	4637	50	1000	Pc



Pulltruded round glass fibre battens, and carbon fibre battens for extra strength.

Part no	Dimensions [mm]		Length [m]	Packed per
	Outer Ø	Inner Ø		
<b>Glass Fibre ROUND BATTENS, Pulltruded</b>				
3975-08-058	7,90	4,00	5,8	Pc
3975-10-058	9,90	5,50	5,8	Pc
<b>Longitudinal Carbon Fibre ROUND BATTENS, Pulltruded</b>				
3980-08-058	7,90	4,00	5,8	Pc
3980-10-058	9,90	5,50	5,8	Pc



3975-XX-058

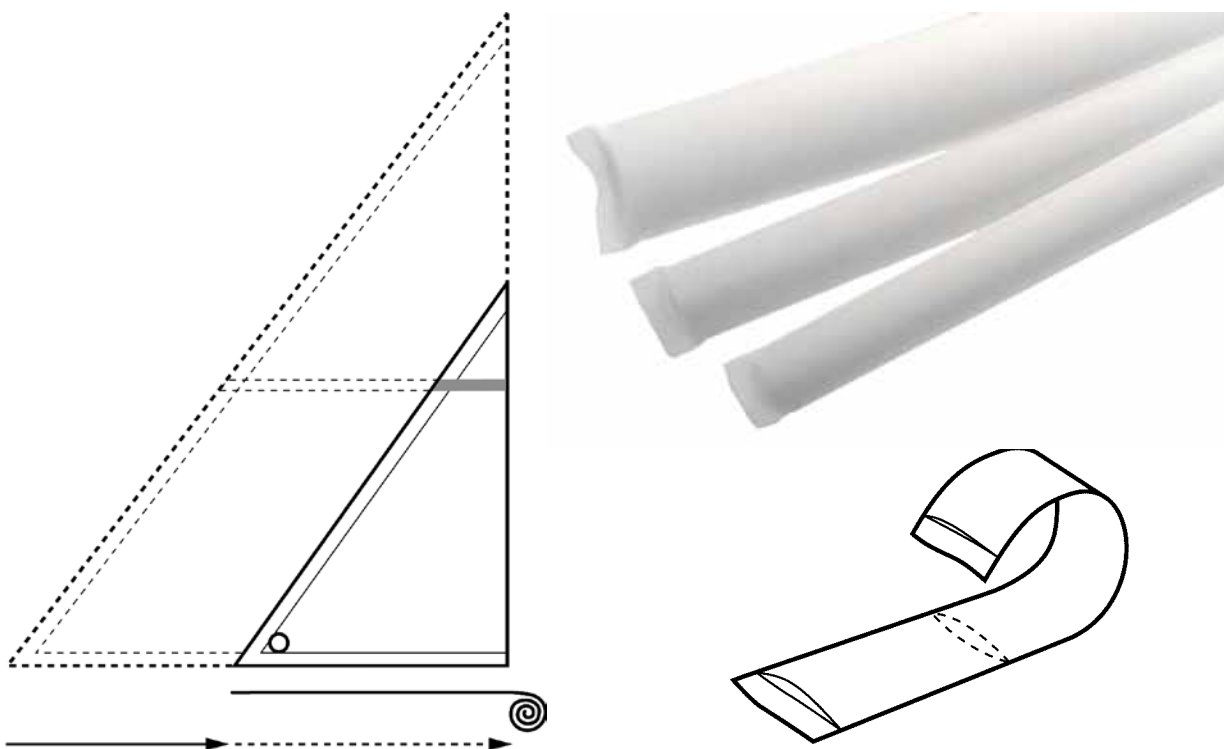


3980-XX-058



## ROLLER-BATTEN™

Rutgerson Roller batten is a unique product which enables the sailmaker to design roller furling sails with conventional horizontal battens, and gives jibs and self tacking jibs performance comparable to jibs with conventional battens. The Roller batten rolls up smoothly on the furling system and allows the boat owner to use a roller furl cover, it can also be used in roller furling mainsails. The core is made of Swedish stainless steel.



Part no	Product description	Dimensions [mm]		Weight [gr]	Recommended Boatsize	Packed per
		Width	Length			
<b>ROLLER BATTEN for roller furling headsails</b>						
3141-030	Roller Batten 40x300mm	40	300	53	<32ft	5
3141-040	Roller Batten 40x400mm	40	400	70	<32ft	5
3141-050	Roller Batten 40x500mm	40	500	87	<32ft	5
3141-060	Roller Batten 40x600mm	40	600	86	<32ft	5
3151-050	Roller Batten 50x500mm	50	500	118	30-40ft	5
3151-060	Roller Batten 50x600mm	50	600	145	30-40ft	5
3151-070	Roller Batten 50x700mm	50	700	166	30-40ft	5
3171-070	Roller Batten 70x700mm	70	700	235	>37ft	3
3171-080	Roller Batten 70x800mm	70	800	270	>37ft	3
3171-090	Roller Batten 70x900mm	70	900	290	>37ft	3
3171-140	Roller Batten 70x1400mm	70	1400	360	>37ft	2

Add R to the end of the Part no. for the reinforced version of 3141-0XX and 3151-0XX.



## BATTEN ACCESSORIES

### PVC Endcaps

Vinyl endcaps for usage on pulltruded flat battens (see page 40).

Part no	Product description	Packed per
<b>PVC ENDCAPS, White coloured for flat battens</b>		
3992-10	Batten endcap, 10mm vinyl	100
3992-11	Batten endcap, 11mm vinyl	100
3992-15	Batten endcap, 15mm vinyl	100
3992-18	Batten endcap, 18mm vinyl	100
3992-22	Batten endcap, 22mm vinyl	100
3992-26	Batten endcap, 26mm vinyl	100
3992-30	Batten endcap, 30mm vinyl	100
3992-40	Batten endcap, 40mm vinyl	100



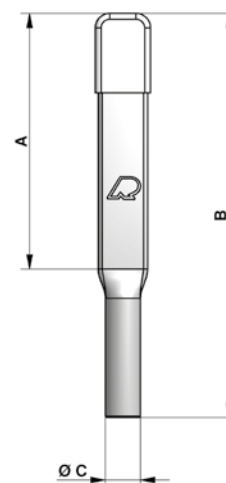
### Stainless Steel Endcaps, for vertical round battens

These endcaps are available in a range of lengths and are made in Stainless, acid proof steel and are supposed to be used together with the Batten connectors.

**NOTE!** 1545-XX are supposed to be connected to the batten with Araldit 2045 or similar.



Part no	Product description	Dimensions [mm]			Packed per
		Length A	Length B	Outer Ø C	
<b>Stainless Steel ENDCAPS for vertical round battens</b>					
1545-06-57	SS Endcap for Ø6mm round batten	57	97	8	Pc
1545-06-85	SS Endcap for Ø6mm round batten	85	125	8	Pc
1545-06-150	SS Endcap for Ø6mm round batten	150	250	8	Pc
1545-08-57	SS Endcap for Ø8mm round batten	57	97	10	Pc
1545-08-85	SS Endcap for Ø8mm round batten	85	125	10	Pc
1545-08-150	SS Endcap for Ø8mm round batten	150	250	10	Pc
1545-10-57	SS Endcap for Ø10mm round batten	57	97	12	Pc
1545-10-85	SS Endcap for Ø10mm round batten	85	125	12	Pc
1545-10-150	SS Endcap for Ø10mm round batten	150	250	12	Pc



## Batten Connectors

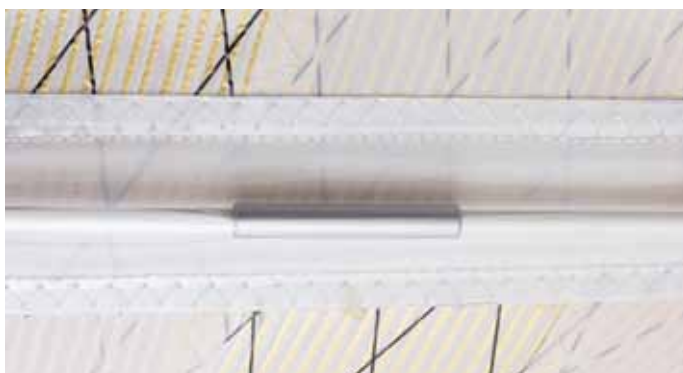
These connectors are made in Stainless, acid proof steel and joins round battens with identical diameter. They are specially constructed for vertical battens in roller furling mainsails, and the refined design enables the sail to easily be furled.

**NOTE!** 1547-XX are supposed to be connected to the batten with Araldit 2045 or similar.

Part no	Product description	For batten Ø [mm]	Assembled outside Ø [mm]	Length [mm]	Packed per
<b>ROUND BATTEN CONNECTOR, AISI 316 Stainless Steel, Straight dividable</b>					
1547-06	Round batten connector 6mm	6	8	200	Set
1547-08	Round batten connector 8mm	8	10	200	Set
1547-10	Round batten connector 10mm	10	12	200	Set



These aluminium connectors are constructed for round battens with the same diameter or to connect two battens with different diameter.



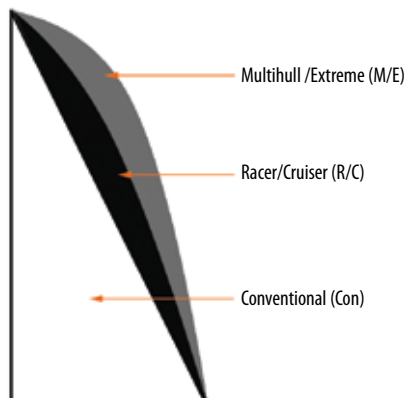
Part no	Product description	Batten 1 Ø [mm]	Batten 2 Ø [mm]	Packed per
<b>ROUND BATTEN STEP CONNECTOR, Aluminium</b>				
1548-0406	Round Batten connector step 4-6mm	4	6	Pc
1548-0608	Round Batten connector step 6-8mm	6	8	Pc
1548-0810	Round Batten connector step 8-10mm	8	10	Pc
1548-1013	Round Batten connector step 10-13mm	10	13	Pc
1548-1316	Round Batten connector step 13-16mm	13	16	Pc
<b>ROUND BATTEN STRAIGHT CONNECTOR, Aluminium</b>				
1548-0606	Round Batten connector straight 6-6mm	6	6	Pc
1548-0808	Round Batten connector straight 8-8mm	8	8	Pc
1548-1010	Round Batten connector straight 10-10mm	10	10	Pc
1548-1313	Round Batten connector straight 13-13mm	13	13	Pc
1548-1616	Round Batten connector straight 16-16mm	16	16	Pc



## RLT RUTGERSON LEECH TENSIONER



Part no	Product description	Dimensions [mm]			Weight [gr]	Max. Batten size	Recommended Boat size	Packed per
		Length	Width	Height				
<b>Rutgerson Leech Tensioners, with square bolt</b>								
1560-02	RLT for Ø6mm round battens	115	16	11	22	Round Ø6mm	<32ft Cruising <28ft Racing <25ft Multihull	Set
1560-03	RLT for Ø8mm round battens	115	16	11	20	Round Ø8mm	<35ft Cruising <30ft Racing <26ft Multihull	Set
1561-00	RLT for 16x6mm flat battens	115	23	9	21	Flat 16x6mm	<32ft Cruising <28ft Racing <25ft Multihull	Set
1561-01	RLT for 20x8mm flat battens	115	30	12	31	Flat 20x8mm	<38ft Cruising <34ft Racing <30ft Multihull	Set



Recommended boat size, depending on sail area and roach variations.

## STAINLESS STEEL RINGS & HANKS



Clew Rings with bar 2310-XXXX



O-Rings 2320-XXXX



D-Rings 2325-XXXX

Part no	Product description	Dimensions [mm]		Weight [gr]	SWL [kg]	Deformation load [kg]	Packed per
		Outer Ø	Inner Ø				
<b>Clew Rings, Stainless Steel with bar</b>							
2310-4008	Clew Ring with bar, 40x8mm	56	40	78	1000	4500	10
2310-6010	Clew Ring with bar, 60x10mm	80	60	174	2000	6500	10
<b>O-Rings, Stainless Steel</b>							
2320-2003	O-Ring, 20x3mm	26	20	5	162	650	10
2320-2004	O-Ring, 20x4mm	28	20	10	250	1000	10
2320-2503	O-Ring, 25x3mm	32	26	8	162	650	10
2320-2504	O-Ring, 25x4mm	33	25	10	250	1000	10
2320-2505	O-Ring, 25x5mm	35	25	15	500	2000	10
2320-3005	O-Ring, 30x5mm	40	30	18	500	2000	10
2320-3006	O-Ring, 30x6mm	42	30	26	675	2700	10
2320-3008	O-Ring, 30x8mm	46	30	30	1250	5000	10
2320-4006	O-Ring, 40x6mm	52	40	32	675	2700	10
2320-4008	O-Ring, 40x8mm	56	40	60	1250	5000	10
<b>D-Rings, Stainless Steel</b>							
2325-2505	D-Ring, 25x5mm	35	25	15	450	1600	10
2325-5006	D-Ring, 50x6mm	62	50	39	600	2500	10

Part no	Product description	Dimensions [mm]		Packed per
		Inner length	Max stay Ø	
<b>Piston Hanks, Solid brass with SS springs</b>				
2160-040	Piston Hank, 40mm	40	8	10
2160-050	Piston Hank, 50mm	50	9	10
2160-060	Piston Hank, 60mm	60	12	10
2160-070	Piston Hank, 70mm	70	15	10
2160-080	Piston Hank, 80mm	80	17	10
2160-090	Piston Hank, 90mm	90	20	10
2160-100	Piston Hank, 100mm	100	25	10

Knock-on Piston hanks. Solid brass with stainless steel springs.



Part no	Product description	Dimensions [mm]		SWL [kg]	Packed per
		Inner length	Max stay Ø		
<b>Sail Snap Hooks, Solid brass</b>					
W72483	Sail Snap Hook 55mm	5	25	350	10
W72486	Sail Snap Hook 50mm	5	34	250	10
W72487	Sail Snap Hook 60mm	5	24	450	10

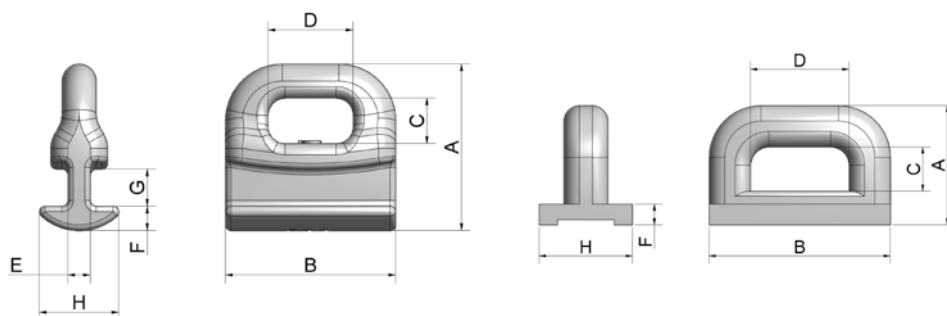
Sail snap hooks, solid brass with stainless steel springs.



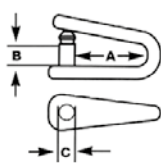


## PLASTIC SAIL SLIDES & SHACKLES

Plastic Sail slides fit various mast sections. Made of white Nylon to absorb high frequency chock loads.



Part no	Product description	General dimensions [mm]				Profile dimensions [mm]				B / I no	For profile	Packed per
		A	B	C	D	Gap width E	Profile foot F	Profile depth G	Profile width H			
<b>Plastic Sail slides</b>												
2241-334	Sail Slide 1334	21	25	5,5	16	3	3,5	3,5	10,5	A013	Seldén 1334/HA558	100
2241-335	Sail Slide 1335	28	29	8	16	4	4,5	4,5	14	A014	Seldén 1335/HA458	100
2241-336	Sail Slide 1336	34	39	8,5	20	4	7	8	15	A015	Seldén 1336	100
2241-1030	Sail Slide 1030 C	28	29	8	14	8,5	6,5	4	19,5		Seldén C	100
2241-1040	Sail Slide 1040 C	34	39	8	19	8,5	6,5	4	19,5		Seldén C	100
2243-089	Sail Slide HA89	21	32	7,5	19	7,5	3,5	3,5	16	A007	HA89	100
2243-090	Sail Slide HA90	23	35	8,5	19	8	4	4	18	A008	HA90	100
2243-091	Sail Slide HA91	25	40	9,5	21	8	5,5	5	21	A009	HA91	100



## Sail Shackles, Knock-on

Knock-on Shackles, plastic and stainless steel versions.



2262-XXX



2260-XXX

Part no	Product description	Dimensions [mm]			Packed per
		A	B	ØC	
<b>Sail Shackles, Knock-on</b>					
2260-749	Sail Shackle, HA749 Knock-on plastic	20	9,5	5	50
2260-849	Sail Shackle, RU849 Knock-on plastic	28	10	5	50
2260-850	Sail Shackle, RU850 Knock-on plastic	39	10	5	50
2260-851	Sail Shackle, RU851 Knock-on plastic	55	10	5	50
2262-101	Sail Shackle, HA749 Knock-on SS	25	11	5	10
2262-102	Sail Shackle, RU849 Knock-on SS	34	15	5	10
2262-103	Sail Shackle, RU850 Knock-on SS	24	15	5	10

## CLEATS

Original Clamcleats® for efficient leech line handling.



2200-212



2200-212A



2200-214



2200-233



2200-241



2200-258



2200-259

Part no	Product description	For line Ø	Dimensions [mm]		Fastening Ø [mm]	Material	Packed per
			Length	Width			
<b>Clamcleats</b>							
2200-212	Clamcleat CL212 + PR/R	2-5mm	70	21	5	Nylon	100
2200-212A	Clamcleat CL212A, Cover for CL212	-	70	30	5	Nylon	100
2200-214	Clamcleat CL214W + PR	2-5mm	70	21	5	Nylon	100
2200-233	Clamcleat CL233 + P	2-6mm	57	34	5	Nylon	100
2200-241	Clamcleat CL241 + PR	3-6mm	70	21	5	Aluminium	20
2200-258	Clamcleat CL258 + PR	3-6mm	70	21	5	Aluminium	20
2200-259	Clamclear CL259 + PR	3-6mm	70	21	5	Aluminium	20

Clamcleat® is a registered trademark of Clamcleats Ltd.



## RUTGERSON E-Cleats

Rutgerson Leech line cleat is a cost efficient and durable solution to leech line handling.

Part no	Product description	Line Ø [mm]	Length [mm]	Width [mm]	Material	Packed per
<b>Leech Line Cleats</b>						
2215-01	Leech line cleat, E-cleat No1	2-3	70	21	Nylon	100
2215-02	Leech line cleat, E-cleat No2	3-6	70	30	Nylon	100



## RUTGERSON Tape folder

The Rutgerson Tape Folder greatly increases efficiency for the time consuming operation of creasing tapes.

1. Loosen the two wing nuts. Push the two stainless plates and upwards.
2. Fold/crease half a metre of the tape precisely in the middle.
3. Insert the folded/creased tape into one of the slots. Use the narrow slot for tapes lighter than 280gr/sqm, and the wider slot for tapes heavier than 280gr/sqm. The fold should point towards the stainless plate.
4. Push the stainless plate down against the folded tape. Tighten the wing nuts again.
5. Pull the tape straight through the tape folder.



Part no	Product description	Packed per
1650	Rutgerson Tape Folder	Set

## RONDO Chafe protector

Rondo is a clip on system that prevent sails and running tackle from chafing against standing rigging. The Rondo is pre-drilled to fit Ø6mm wire but can be drilled to fit wires up to Ø11mm, and is ideally suited for wire, shrouds etc.

Part no	Product description	Min wire Ø [mm]	Max wire Ø [mm]	Packed per
<b>RONDO Chafe Protector</b>				
1800	RONDO Chafe Protector	6	11	30 Pair





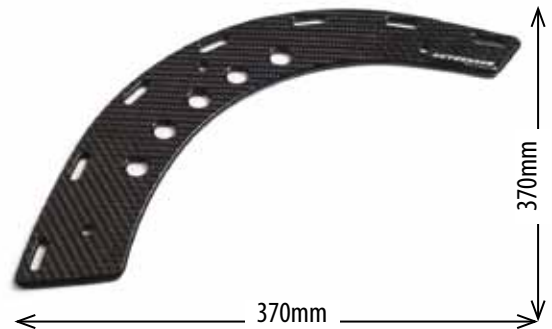
## Carbon Fibre Products

Through extensive research and testing, RutgerSON has set up a Carbon Fibre pre-preg lamination process. Therefore, we can now offer clewboards, headboards and other products in carbon fibre.

Our new carbon fibre-range outperforms conventional products due to the extraordinary strength and bending properties of carbon fibre. All carbon fibre products are manufactured on individual request.

Saving weight is critical for racing. Thusly, an entire market has evolved due to the increasing demand for lighter and stronger fittings. For example, the most critical location on the boat to save weight is the top of the sail. Therefore, our carbon fibre headboards would be the optimal solution.

Due to our flexible facilities, we have the possibility to produce customised products made out of carbon fibre, not only including headboards and clewboards but all kinds of products.



Customised product for North Sails



Customised product for Royal Blue



## SPARE PARTS

Part no	Product description	Catalogue reference page #	Packed per
<b>SPARE PARTS FOR BATTEN FITTINGS &amp; RECEPTACLES</b>			
1490-11	Spare part kit for Batten fitting 1490	26	Set
1580-11	Spare part kit for Batten fitting 1580	27	Set
32-0237	Sliding hatch for Batten receptacle 1580	27	Pc
32-0006	Backside for Batten receptacle 1590	27	Pc
32-0008	Sliding hatch for Batten receptacle 1590, 1595	27	Pc
32-0102	Sliding hatch for Batten receptacle 1596	27	Pc
41-0004	Tension screw A4-MCS M6x100 for Batten receptacle 1590/1595/1596	27	Pc
41-0063	Short assembly screw A4-RX 16x12 for Batten receptacle 1580/1590/1595/1596	27	Pc
41-0064	Long assembly screw A4-RX 16x16 For Batten receptacle 1590/1595/1596	27	Pc
1500-10	Wedge for 1500 fitting	-	Pc
1505-10	Wedge for 1505 fitting	-	Pc
<b>SPARE PARTS FOR PRESSURE ABSORBING SLIDES &amp; BATTMATS</b>			
1530-03	1530-XX-03 adaptor with swivel fork	34	Pc
1530-05	1530-XX-05 adaptor M10 SS thread	35	Pc
1530-09	1530-XX-09 adaptor M10 SS thread	36	Pc
1530-10	1530-XX-10 rod pin SS	37	Pc
1530-11	1530-11-XX slide with wheels only	31	Pc
1530-16	1530-16-XX slide with wheels only	31	Pc
1530-19	1530-16-XX slide with wheels only	31	Pc
1530-20	1530-20-XX slide with wheels only	31	Pc
1530-23	1530-23-XX slide with wheels only	31	Pc
1531-11	1531-11-XX slide with wheels only	31	Pc
1531-16	1531-16-XX slide with wheels only	31	Pc
1535-05	1535-05-XX slide with wheels only	31	Pc
1535-11	1535-11-XX High Load slide with wheels only	31	Pc
1535-23	1535-23-XX High Load slide with wheels only	31	Pc
<b>VARIOUS SPARE PARTS</b>			
41-0048	Screw M3x4mm for round batten connector 1547-XX	43	Pc

## GENERAL WARRANTY & KEY TERMS OF SUPPLY BY RUTGERSON MARIN AB

### A) WARRANTY

#### 1) PERIOD OF WARRANTY

Rutgerson Marin AB issues a general warranty time durable for three years against malfunction or breakage from the date of delivery.

#### 2) WARRANTY COVERAGE

Products sold by Rutgerson Marin AB and in normal and customary use, are conditionally warranted against malfunction or breakage. The warranty does not cover:

- i) Defects or damage resulting from use of the product in other than its normal and customary manner;
- ii) Defects or damage from misuse, accident or neglect;
- iii) Defects from improper testing, operation, maintenance, installation, alteration, modification or adjustment;
- iv) Damage from unauthorized repair or alterations;
- v) Damage from corrosive materials, ultra violet degradation, wear or tear beyond the specification of the case or enclosure.

#### 3) WARRANTY PROCEDURE OF SERVICE OR REPLACEMENT

Notice of a claim for defect, service or replacement covered by this limited warranty shall be made promptly and in writing to the local Rutgerson distributor that supplied the product or to Rutgerson Marin AB, Box 84, SE-442 19 Marstrand, SWEDEN. Products returned for service or replacement under this limited warranty must be assigned a valid RGA Return Goods Authorization number by Rutgerson Marin AB. Unidentified and unauthorized goods returned to Rutgerson Marin AB will NOT be approved or eligible for further investigation.

The customer is responsible for undertaking all expenses associated with transporting the goods to and from Rutgerson Marin AB or the local Rutgerson distributor that supplied the product. If the investigation of the product and the warranty claim reveals that the defect, malfunction or breakage is not covered by this limited warranty, the customer will be contacted and advised with respect to additional cost in conjunction with service or replacement.

For approved RGA goods, please send these together with assigned RGA documents to:

WARRANTY GOODS  
Rutgerson Marin AB  
Mjölkekilsgratan 21  
SE-442 66 Marstrand  
SWEDEN

### B) PURCHASE ON APPROVAL

Rutgerson Marin AB issues a general purchase on approval period durable for 60 days after delivery. Products that are subject for return needs to be unused and delivered to Rutgerson Marin AB in their original packing and according to the procedure stated in section (A3) above. Returned products will thereafter be subject to investigation and upon approval a 15% handling fee of the original purchase amount will be surcharged to all eventual credits. For all customized or one-off items, purchase on approval does not apply.

### C) SUPPLY

#### 1) PACKING QUANTITY

Products are supplied in stated packing and minimum purchase quantities only. For supply in smaller and/or customized quantities, additional terms will apply. For further information about alternative supply conditions, please contact Rutgerson Marin AB.

#### 2) DELIVERY TIME

All official delivery times endorsed by Rutgerson Marin AB are estimated and can be subject to changes. Rutgerson Marin AB is in the event of such related changes legislated to inform the customer.

#### 3) UNANTICIPATED DEFECTS & DELAYS

Rutgerson Marin AB shall not be liable for unanticipated defects/delays, nor shall it be liable for any damage, whether direct or indirect, beyond the provisions set forth above or otherwise provided to customers under statutory law legislation. In connection with delivery of incorrect or defective goods, the customer must promptly submit a complaint to Rutgerson Marin AB.

### D) DEFINITIONS

#### 1) SAFE WORKING LOAD (SWL)

Is the maximum static and/or dynamic load at which the product will still function without excessive friction, distortion, wear or permanent deformation of its components. Above this load, systems may fail, moving parts may seize and stainless steel or plastic components may begin to bend, stretch or otherwise deform. SWL should never exceed 55% of the breaking load (BL), and should never be exceeded in use.

#### 2) BREAKING LOAD (BL)

Is the load at, or around which, a major failure can be expected to occur to some part of the product's structure when new. Plastic components may split, rivets may give way, shackles may break and other metallic components may fracture. No product should be used at more than 55% of the breaking load.

# Rutgerson Sail Hardware Distributor Network

Rutgerson Marin AB is represented on all continents by an impressive network of over 40 local distributors. All our distributors have a long tradition of serving our customers with dedication and knowledge of our products and their demands.

For updated information about our distributors, please visit [www.rutgerson.se](http://www.rutgerson.se)

