



RS:4 SPEEDSEEKER
RS:4 RACING

NEIL PRYDE'S ALL NEW RS:4

The **RS4** was born from the relentless quest for speed. Based closely on the concepts of Neil Pryde's Speedseeker sail, the **RS4** takes the performance of race sails to another level, greatly improving speed, stability & acceleration on all points of sail.

In support of **Bjorn Dunkerbeck's** pursuit of the 50-knot barrier & the World Speed-sailing record, the Neil Pryde Design Center (NPDC) developed a no-compromise sail called the Speedseeker. In order to make a serious attempt at the record, the NPDC knew that a new concept would have to be developed in order to make a significant improvement in the efficiency of today's windsurfing sails.

The major & innovative concept developed for this sail was the Double

Surface Leading Edge with a Dynamic Luff Profile: essentially an over-sized variable width/depth luff pocket. During testing, it was found that the performance of the sail was improved not only in the top end & off the wind (the key points for Speedsailing), but also in the low end and upwind.

And thus the new **RS4** was born.

The RS4 is split into two distinct ranges according to the intended use of the sail. The **RS4:Speedseeker** has been designed for blistering speed & control in "off-the-wind" sailing, whether it be on a slalom or speed course. The **RS4:Racing** has been tuned for extreme upwind & downwind angles, to ensure that you are first to the top mark in Formula Windsurfing.

NEW TECHNOLOGIES:

1.



DOUBLE SURFACE LEADING EDGE WITH DYNAMIC LUFF PROFILE:

Variable sleeve width proportional to the depth of the sail profile for increased lift & reduced drag.

2.



MATERIAL - KEVLAR LUFF POCKET:

Allows vertical flex while preventing horizontal profile distortion.

3.



COMPOSITE MINI-BATTENS LAMINATED TO LUFF SLEEVE:

Help to stabilize the entry of wind at the critical top section.

4.

SILVER METALIZED MONOFILM FOR UV RESISTANCE:

Using a process called Vacuum Metalization, the monofilm material now includes a metallic coating that increases reflection, thus greatly reduces the damaging effects of UV rays.



MAJOR PERFORMANCE ENHANCING TECHNOLOGIES:

1. **3 piece batten construction** – For a lightweight & smoother definition of the sail profile.

2. **Component Luff Pocket Construction**

3. **Cam Pressure Adjustment System.**

4. **Flexhead Configuration.**



CONSTRUCTION FEATURES:



New

1. **P.U. Moulded Batten End Chafe Protectors.**



3. **Low Profile Tack Fairing for lightweight**



7. **Kevlar SP Construction.**



9. **Multi Position Clew & Chain Lock Patch Construction.**



New

2. **Thermomoulded P.U. reinforced tip protector.**

4. **CNC tapered batten front components.**



8. **Integrated Mini Leech Composite Battens.**

5. **Super Cam II**



6. **Tube specific batten tension adjustment system.**



10. **Triple Roller Tack Fitting.**

Interview with Neil Pryde Design Center Head Tester: Jimmy Diaz

Q: So, what is the key feature of the RS4 & how does it work?:

JD. The key feature of the **RS4** is its' Double Surface Leading Edge with a Dynamic Luff Profile. Essentially this is a construction process where an over-sized luff pocket overlaps the regular sail panels by approx. 10-15%. This results in a sail with a much "wider" leading edge for a smoother entry, which greatly improves the lift while consequently reducing the drag. That is, a sail that is much more aerodynamically efficient.

Q. Why not produce a sail that is completely Double Foil?

JD. During testing, we actually started with a full Double Foil sail but found that this didn't work as effectively as a regular sail. Windsurfing sails require a high degree of twist. In order to allow the **RS4** to twist in the most efficient manner possible, the Double Surface Leading Edge is variable in width along the length of the sail – we call this the "Dynamic Luff Profile":

- The lower section of the sail that produces the most power (and twists the least) includes the widest Double Surface Leading edge.

- The top section of the sail that needs to twist the most includes the narrowest Double Surface section.

Q. Why does the Luff Pocket overlap the regular sail panels?

JD. The regular sail panels are required to support the entire basic structure of the sail: battens, cams, horizontal & vertical shaping. A Double-Surface Leading Edge constructed using standard techniques (no overlap) would result in a sail that lacks precise shaping & stability in the critical leading edge.

Q. And the new material on the luff pocket...?

The new material used for the construction of the Double Surface

Leading Edge is a "Kevlar Reinforced X-Ply". The key property of this material is that it is very stretch resistant in one direction, while being more elastic in the other. The material is built into the sail so that it stretches vertically allowing the sail to twist freely. The horizontal resistance means that the sail more precisely maintains it's shape & profile when under load.

Q. Looking at the RS4, it appears that Neil Pryde seem to be going away from the Bat Wing leech concept? Why is that?

Previous Neil Pryde sails have used the Batwing Leech technology in order to reduce leech flutter and therefore drag. However, in theory, to reduce drag to a minimum the best solution is to use the shortest possible trailing edge – a leech cut directly between two points. This is only the most ideal solution if the leech can be stabilized properly, and leech flutter minimized. The **RS4** uses extra long Carbon Leech Mini-Battens to stabilize the leech, reduce flutter, and use the shortest possible trailing edge for greatest efficiency.



Jimmy Diaz

Q. The new materials used in the luff pocket, how do they withstand rigging?

To rig the **RS4**, a slightly different rigging technique from conventional sails is

required. Instead of feeding the mast through the cambers, the cambers are put on after the mast & boom are attached to the sail. This means that there is no wrinkling of either the monofilm or the luffpocket, meaning that your sail will last much longer & be more durable. For further details on rigging the sail, a small booklet is supplied with the sail & also on the NP Website: www.neilpryde.com.

Q. So putting this together, on the water, how does the RS4 perform when compared to the RS3? What are the key differences or points of sail that were improved upon?

The **RS3** proved to be a very successful design and every year it has been increasingly more difficult to improve on the race sails. This year we knew we faced an uphill battle in coming up with something quicker than the **RS3**. In the end, however, the **RS4** proved to show the biggest differences in speed from one year to the next that we have ever seen in developing the race sails. The **RS3** is not competitive any more. The **RS4** is beating it on all points of sail in the top end AND low end. This is extremely difficult to achieve especially when you already have such a high performing sail like the **RS3**. The **RS4** is faster, more efficient, and more stable. It is phenomenal especially when you line up with somebody on last year's sails.

Q. Any last comments on the RS4?

The early **RS4** prototypes convincingly won the last two major events of the year leaving no doubt about its' performance benefits. The performance advantages were so significant that it's innovations turned a number of heads on the Racing circuit at the end of 2003. Being the first to work on this new concept gave us the advantage of being able to develop **RS4** specific construction techniques such as the uni-directional Kevlar sleeve construction, and a mini batten supported leading edge profile.

Putting all these features & design concepts together, to take a quote from Bjorn Dunkerbeck, essentially the **RS4** is "...about efficiency, stability and acceleration – it's this combination that's going to make you go faster in the end".



C1: Charcoal/Silver



C2: Orange/Silver



C3: Silver/Silver

DESIGN & SHAPING FEATURES

The **RS4** is divided into two different size ranges & styles depending on the intended use of the sail:

RS:4 SPEEDSEEKER

- + 7 Battens / 4 Cambers
- + Smaller high-wind sizes for Speed & Slalom Racing.
- + More forward orientated shaping for control off the wind and in chop.
- + More pronounced leech twist for high speed, rough water & control.

RS:4 RACING

- + 8 Battens / 5 Cambers
- + Larger light-wind sizes for Formula Windsurfing.
- + Ultra-fine entry & tighter leech for extreme upwind angles.
- + Two Carbon Tube Battens for ultra stability.

Product	Code	Weight	Max. Luff	Max. Boom	Battens	Cam	Base	Recommended Mast
NP '04 RS4 Speedseeker	5.0 BNP4RS450	4.20	401	179	7	4	2	X9 Wave 400
NP '04 RS4 Speedseeker	5.4 BNP4RS454	4.45	416	186	7	4	16	X9 Wave 400
NP '04 RS4 Speedseeker	5.8 BNP4RS458	4.59	434	195	7	4	4	X9 430
NP '04 RS4 Speedseeker	6.2 BNP4RS462	4.83	447	199	7	4	18	X9 430
NP '04 RS4 Speedseeker	6.7 BNP4RS467	5.05	465	205	7	4	6	X9 460
NP '04 RS4 Speedseeker	7.2 BNP4RS472	5.25	480	215	7	4	20	X9 460
NP '04 RS4 Speedseeker	7.8 BNP4RS478	5.49	498	223	7	4	8	X9 490
NP '04 RS4 Speedseeker	8.4 BNP4RS484	5.73	514	231	7	4	24	X9 490
NP '04 RS4 Racing	9.0 BNP4RS490	6.17	520	255	8	5	30	X9 490
NP '04 RS4 Racing	9.8 BNP4RS498	6.50	542	266	8	5	12	X9 530
NP '04 RS4 Racing	10.7 BNP4RS417	6.82	567	278	8	5	38	X9 530
NP '04 RS4 Racing	11.6 BNP4RS416	7.16	590	289	8	5	10	X9 580
NP '04 RS4 Racing	12.5 BNP4RS412	7.48	604	300	8	5	24	X9 580