The lead is taken not given

ARC the third - wider, higher, lighter

Being a leader is not for the faint of heart. You are constantly pursued, with rivals working hard to surpass you. Since the launch of our benchmark setting ARC wheels, we have never stopped working on their refinement. Now with the 3rd generation, we are reaching a new peak of innovation. With wider tires offering better grip and comfort, we calibrated our rims accordingly while still providing that competitive edge. The third generation features a wider inner width and a unique V-shape without compromising aerodynamics. Developed together with our WTS technology, the ARC wheels can be ridden with the AERO 111 tire for the ultimate aerodynamic setup. On the mission to take the lead and develop our fastest wheels yet, we accomplished the goal of wider, higher yet lighter rims. V-shaped for victory, they will propel you forward. The lead isn’t just given out in cycling. You have to take it.

Creating wider, higher and lighter wheels was not simply given to us. It took a lot of research and testing to reach this new peak of innovation. We used all the know-how we have accumulated since the first generation and listened to the feedback of some of the world's best triathletes and road cyclists. Here are the key features of the new ARC range:

Wider rims

It’s no secret that professional cycling has seen a shift toward wider tires in recent years. To optimally accommodate this, a wider rim inner width is required. An inner rim width of 22 mm ideally suits the 29 mm AERO 111 that has become the new standard, while maintaining optimal aerodynamic performance.

V-shape

Increasing the inner width of the rim has a direct effect on the frontal area of the wheel. The V-shape of the rim compensates for this and optimizes air resistance. As our tests in the wind tunnel show, this shape clearly provides the lowest base drag measured. Additionally it provides a small steering moment, ensuring a smooth steering sensation for the rider.

3 new rim heights

Thanks to three distinctive rim heights, a wide variety of riding preferences can be covered: do you like to ride fast on a variety of terrain, without fearing an occasional steep climb? Then the 55 mm rim height is the ideal one for you. The 65 mm deep rims let you take the lead of the sprint with their fast aero-optimized profile and are ideal for flat out rides on flat terrain. And finally, the highest rim, the 85 mm are the fastest, and offer the lowest drag, ideal for triathlons or time trials.

Wheel Tire System (WTS) Technology

The new ARC wheels have been developed applying the WTS Technology with the AERO 111 tire following our AERO+ concept as a symbiosis of drag, handling and efficiency. On top of the lower base drag provided by the V shape, the combination with the AERO 111 and its unique vortex generators adds a strong sailing effect. The steering moment increases evenly in cross-wind conditions, avoiding any jolts. This translates into more predictable and comfortable the rider, ultimately increasing the confidence to stay as aero as possible at all times.

Aero-optimized components

No stones were left unturned. Thanks to our know-how we made sure to align all of the components in the quest of lacing together the ideal wheelset that not only provide a great aero-optimization, but a great rideability as well. Aero-optimized spokes, reduced to 20-count in the front wheel, provide a slight decrease of drag while saving weight as well.

Rotational drag – comparison results

With an in-house developed measurement rig, we quantified the influence of a lower spoke count on the rotational drag. Rotational drag can be described as the additional friction that occurs between the wheel as it passes through the surrounding air with rotating components. The measurements were carried out with yaw-angles of 0° (frontal) and 10° (cross wind conditions) at 45 km/h.

The measurements showed a reduction of drag of 0.2 watt (5.5 % reduction) at 0° yaw and 0.5 watt (12 % reduction) at 10° yaw (measurement accuracy: < 0.1 watts). The significantly improved values of the new ARC 1100 DICUT 55 wheels are thanks to the lower spoke count and shorter spokes due to the 5 mm higher rim profile.

For more technical explanations, visit our AERO+ Technology page.

Results

ARC DRAG PERFORMANCE

Pictured here are the aero drag values from wind tunnel measurements for all rim heights. Decreasing drag at higher yaw-angles is proof of the sailing effect: the aero drag is effectively reduced, and the wheel can even create propulsion in specific yaw-angles.

All ARC Aero wheels reach their minimum aero drag due to the aforementioned sailing effect at yaw-angles of around -16° to – 18° / +16 to +18°. In these side wind situations, the rider can push less watts for the same speed. Additionally, we measured the ARC 85 with AERO 111 tires in two different widths showing advantageous drag values, both in a lower frontal base drag and improved sailing effect. Especially, the 26 mm AERO 111 was able to increase the sailing effect and creating a negative drag of up to 17.3 watts at more extreme yaw-angles.

Facts on the table: the ARC 1100 DICUT 85 WTS with 26 mm AERO 111 front tire is our fastest wheelset in the new ARC range.

For more technical explanations, visit our AERO+ Technology page.

Results

ARC STEERING MOMENT

It is undisputed that higher rim profiles provoke a stronger steering moment while providing lower aero drag leading to more speed. The challenge in the development of the new ARC wheels was the balance of aero drag and steering moment to achieve the best handling properties.

The illustration shows the differences of steering moments at yaw angles ranging from -20° to +20°, measured in the wind tunnel simultaneously with the aero drag. The different gradients of these measurements show that ARC 55 WTS and ARC 65 WTS have relatively low absolute steering moments, while the ARC 85 WTS have a steeper expected gradient due to the higher rim.

In comparison with competitors in similar rim heights, the difference of these values is clear.

For more technical explanations, visit our AERO+ Technology page.

ARC 55:

DRAG & HANDLING

COMPETITOR ANALYSIS

The ARC 1100 DICUT 55 has the lowest aerodynamic drag in the frontal base drag area. The sailing effect in more extreme yaw-angles is moderately lower compared to some competitors. This gives the rider more control upon detachment of the airflow from the rim, called stalling. This enhanced rideability is proven in this comparison by the lowest steering moment and its flat curve gradient.

Adding the AERO 111 tire in 29 mm to the ARC 55 wheels (dotted line) attributes a drag-decreasing sailing effect with a steady and predictable steering moment over the full range of yaw-angles.

ARC 65:

DRAG & HANDLING

COMPETITOR ANALYSIS

The ARC 1100 DICUT 65 wheel is the overall best performing wheel in comparison with other wheel brands in the same or similar rim height.

With our development focus on the frontal drag area, the 65 mm rim has a significantly lower base drag. In less often occurring yaw-angles of < -12° and > +12°, other wheels can create a slightly better sailing effect. The downside of this is a higher steering moment (up to 53 % higher compared to ARC 65) which negatively influences the riding characteristics, especially in more unpleasant cross wind conditions. The development on the new ARC wheels took this into account and we managed to achieve the lowest weighted steering moment within the competitor comparison.

Adding the AERO 111 tire in 29 mm to the ARC 65 wheels (dotted line) will increase the sailing effect and moderately also the steering moment.

ARC 85:

DRAG & HANDLING

COMPETITOR ANALYSIS

In comparison with competitor wheels in rim heights of 80 mm and above, the new ARC 85 is by far the best performing wheel taking aero drag and steering moment into account. The wheel is especially performing well in the frontal base drag area, where airflow creates less drag due to the V-shaped rim profile combined with a 25 mm wide tire. While the closest competitor is just 0.5 Watt lower in weighted drag, its steering moment is the highest with 34 % more. All other competitor wheels are approx. 2.3 Watts higher in drag (+ 27 %) and are measured 18 % higher in steering moment.

Concluding, the ARC 85 brings its advantage with the low base drag level, as it is designed around a tire width of 25 mm. Using a 26 mm AERO 111 front tire (dotted line) would further decrease the aerodynamic drag but would moderately increase the steering moment within a predictable range.

1100 vs. 1400

The 3 new rim heights are available as both 1100 and 1400 level. Wondering which wheels are right for you? Check out the following table summing up the key differences:

ZWIFT DROP SHOP

NEW ARC WHEELS AVAILABLE

Ride on!

Take the lead with the fastest ARC Aero wheels in Zwift: The new ARC wheel combination of ARC 85 and ARC DISC WTS is now available in the “Drop Shop”. In combination with the AERO 111 WTS-Technology, this wheelset is currently the fastest wheelset in Zwift.

Additionally, the all-round ARC 1100 DICUT 65 WTS replaces its predecessor and adds more aero performance while being lighter. Your go-to-wheelset for most of the rides, no matter if it's a quick group ride with some elevation or if you need to sprint to the finish line in your flat crit race.

Take the lead with our new ARC wheels in Zwift – just like IRL\*.

\* IRL = in real life

Expert Opinion

«It’s always interesting for me to test new products. When it comes to DT Swiss, I know I’ll be working with thoroughly researched and highly reliable wheels.

That also means it’s no easy task to improve on an already well-performing product. The previous generation set a high bar and yet, I was able to detect clear improvements in my aerodynamic testing. The increased internal width, in line with the industry trend toward wider tires, combined with a notable weight reduction, marks a meaningful step forward.

Beyond the scientific testing and data, I’ve also been using the 65 mm wheelset in regular training and performance-focused (read Strava KOM-hunt) rides. While I don’t typically place too much emphasis on subjective feel, I genuinely prefer the ride quality of this latest generation - it simply rides better.

For me, the new ARC wheels are an easy recommendation for the Uno-X Mobility teams.»

CASPER VON FOLSACH

UNO-X MOBILITY PERFORMANCE MANAGER