

A blurred image of a Colnago T1RS bicycle in motion, showing the frame, wheels, and handlebars. The background is a warm, golden-brown color.

 COLNAGO

T1RS

WHITE PAPER

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T1Rs marks Colnago's return to track competitions after several years

The frame can be configured with custom setups for both pursuit/time trial and endurance/sprint events. All custom components are easily replaceable and adjustable, simplifying setup changes and fine-tuning typically required between different races.

The development of the T1Rs focused on four main areas:

- 1. Aerodynamics**
- 2. Frame stiffness**
- 3. Versatility across different disciplines**
- 4. Geometry**

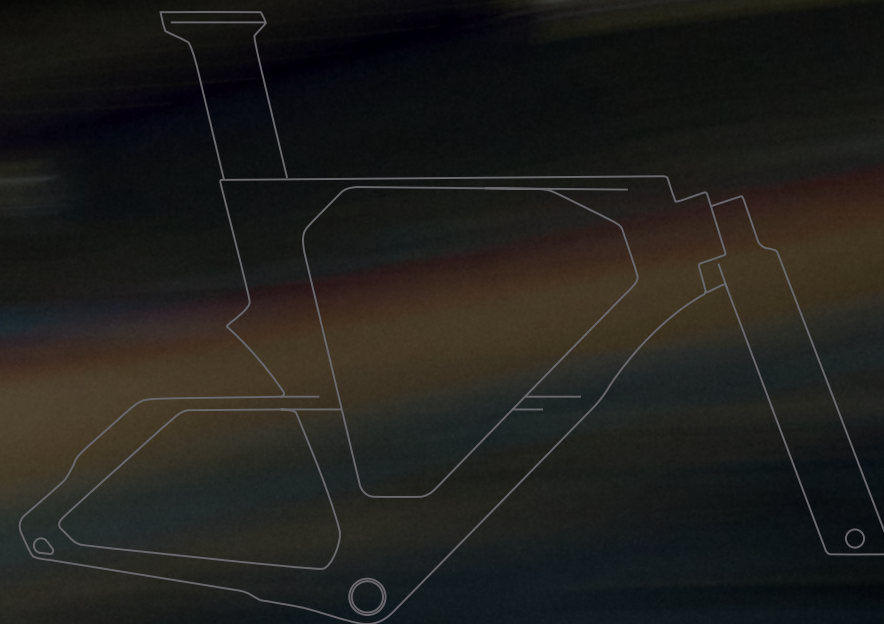
The **T1Rs** frame and its components have been **designed and engineered to minimize air resistance** at high speeds and **to reduce power losses**, thanks to its exceptional stiffness.

The adopted silhouette and design are directly derived from the experience gained in the World Tour with the models TT1 and Y1Rs — both benchmarks in Time Trial and Road Racing competitions, respectively.

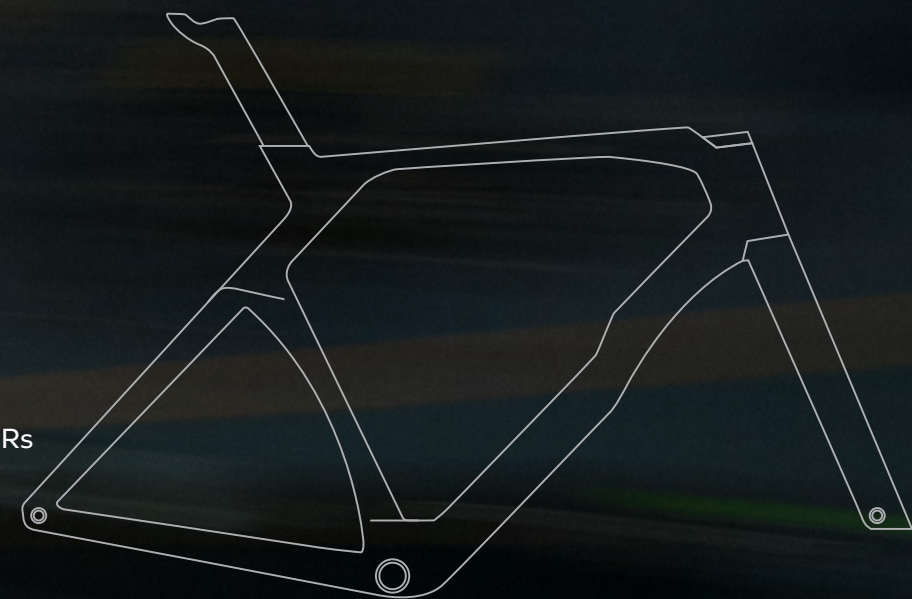
All engineering solutions have been further developed and pushed to the extreme, both in terms of aerodynamics and stiffness, without the constraints imposed by road applications (such as brakes, gears, and other components). For example, the headset and fork construction adopt the same configuration as the TT1, while the rear triangle layout comes from the Y1Rs — both developed to deliver maximum stiffness and aerodynamic efficiency.



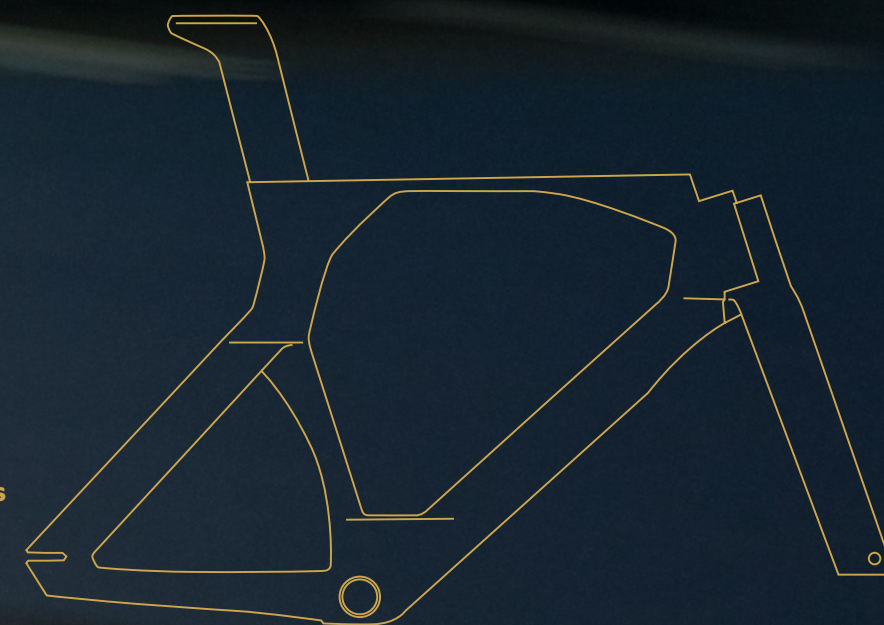
TT1



Y1Rs



T1Rs



1. AERODYNAMICS DESIGNED FOR SPEED

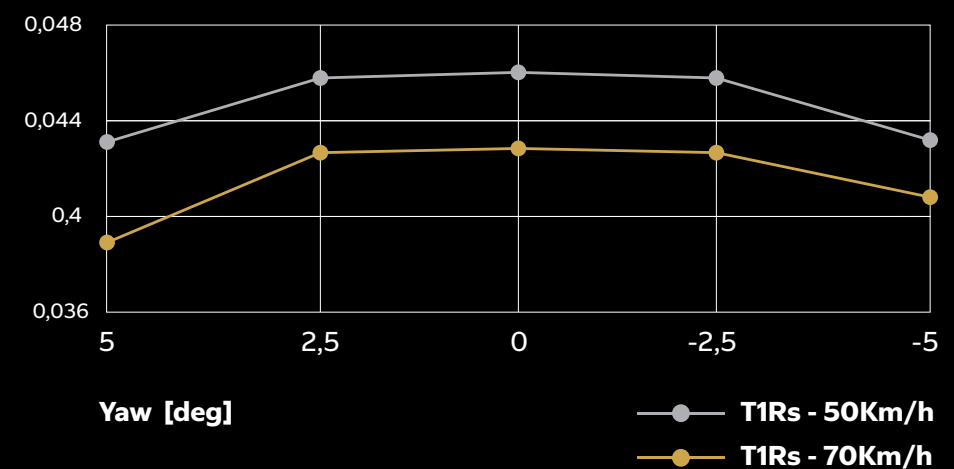
Thanks to extensive use of CFD* analysis and wind tunnel testing throughout all phases of product development, the T1Rs is the fastest bike in the Colnago range.

In particular, the frame has been conceived and optimized to deliver peak performance at speeds above 60 km/h, where the Reynolds number* is higher. The airflow around both bike and rider depends not only on the characteristics of the air, but also significantly on speed.

The T1Rs has been fine-tuned for high-speed performance—precisely when track races are often won or lost—and for very low yaw angles, as indoor velodromes typically have no lateral wind.

In the graph below, a comparison of the T1Rs' CdA* at 50 km/h and 70 km/h (in the same configuration) shows a lower coefficient at the higher speed compared to other bicycles. This doesn't imply that the bike requires less power at 70 km/h (since power demand increases with the cube of speed!), but rather that airflow is less perturbed at higher velocities.

T1Rs - drag area comparison



This performance is the result of several key design choices:

1. Low-drag NACA-derived profiles used throughout the frame and fork sections, with fewer design constraints compared to road bikes due to the reduced number of components and specific requirements.
2. Aerodynamic solutions applied in various frame areas, such as:
 - Narrow hubs (65 mm front, 100 mm rear)
 - Dual-crown fork for minimized frontal area without compromising front-end stiffness
 - Aerodynamic details including bulged chainstays to reduce air recirculation at section transitions and guide airflow around the drivetrain
 - Ultra-narrow, aero-shaped dropouts
 - Fully integrated stem for minimal flow disruption

***CFD (Computational Fluid Dynamics):** A branch of fluid mechanics that uses numerical analysis and specialized software to simulate fluid flow. In cycling, it helps analyze airflow around the bike and evaluate aerodynamic drag of different design solutions.

***CdA:** The drag coefficient multiplied by the frontal area of the bike and rider. This value quantifies the aerodynamic resistance and its impact on the power required to maintain speed.

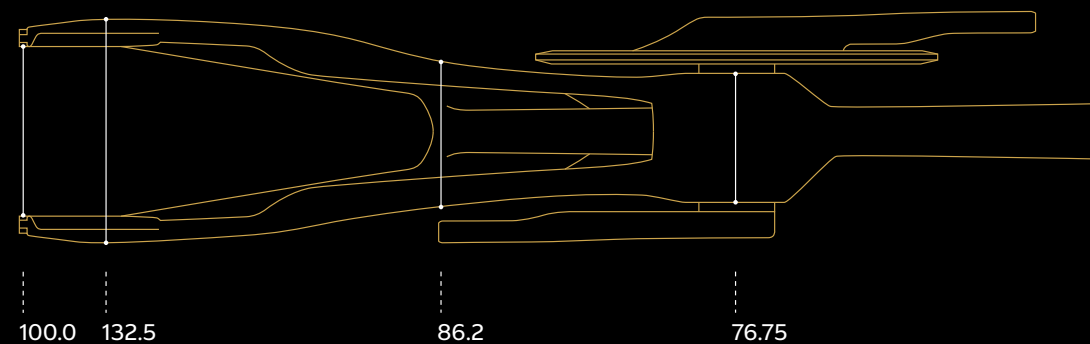
***Reynolds Number:** A key parameter in aerodynamics that characterizes airflow behavior around an object. It depends on the fluid's properties, flow speed, and the object's shape and size.

2. FRAME STIFFNESS

Track cyclists are capable of generating extremely high-power outputs, and the T1Rs is engineered to withstand these forces while minimizing deformation — and, as a result, power loss — during competition.

DESIGN SOLUTIONS:

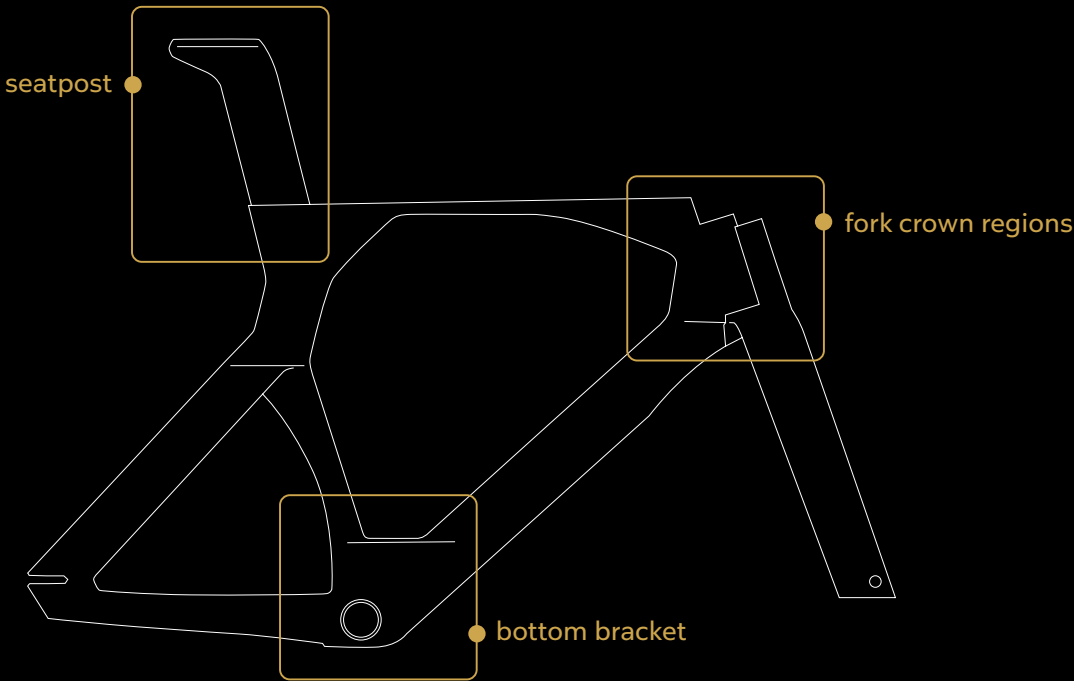
- a. Dual-crown fork layout, already proven in the TT1, increases front-end torsional stiffness by connecting the stem/cockpit to the fork blades and frame via solid bolt interfaces.
- b. Extremely deep and robust chainstays, dropouts, and seatstays are designed to withstand massive torque without deformation — such as during explosive starts and accelerations.
- c. Oversized asymmetric T47 bottom bracket, combined with a reinforced seat tube design, minimizes torsional flex during powerful sprints, both out of the saddle and while seated.
- d. The ultra-compact rear triangle, in combination with the 100 mm narrow rear hub, delivers exceptional lateral stiffness to the rear wheel while enabling the use of a reduced Q-factor crankset and pedals for optimized pedaling and aerodynamic efficiency.
- e. Custom aerodynamic seatpost with internal ribbing to enhance lateral stiffness



LAMINATION:

The frame employs a track-specific carbon layup utilizing high-strength, high-modulus fibers. Internal rib structures are strategically integrated to ensure optimal stiffness despite the use of aerodynamic tube profiles.

Specifically, these reinforcement structures are integrated within the **seatpost**, **bottom bracket**, and **fork crown regions**, enabled by the application of PP mandrels during the carbon layup process.



3. VERSATILITY ACROSS DIFFERENT DISCIPLINES

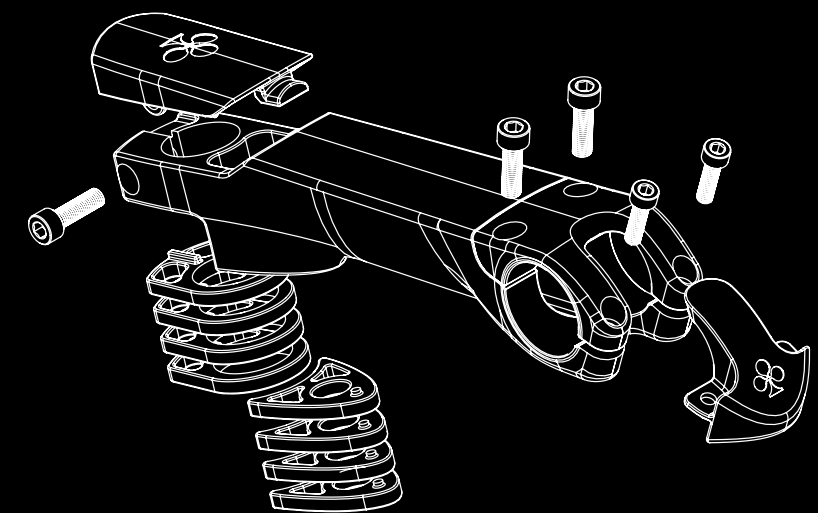
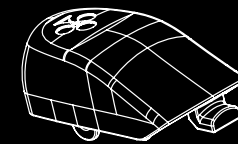
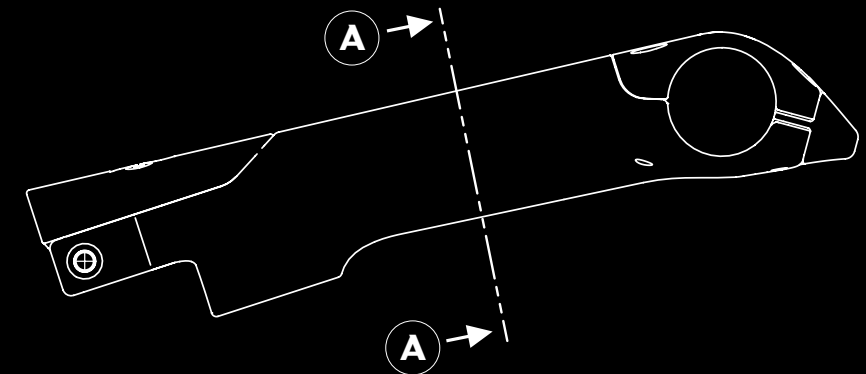
The T1Rs is engineered to deliver outstanding performance across all types of track competitions. The T1Rs platform can be configured in two different setups, depending on the race type.

SPRINT / ENDURANCE SETUP

The custom SR-TRACK stem is designed to ensure maximum torsional stiffness and aerodynamic integration.

Key features:

- Compatible with standard 31.8 mm handlebars for maximum adjustability
- Frame–fork–stem clamping system with two fixing bolts to enhance bending and torsional stiffness
- T-shaped structure to minimize torsional deformation
- Available in three sizes: -6.5° angle, lengths of 125 mm, 150 mm, and 175 mm
- Stackable spacers: up to four 5 mm spacers (maximum total stack height: 20 mm)

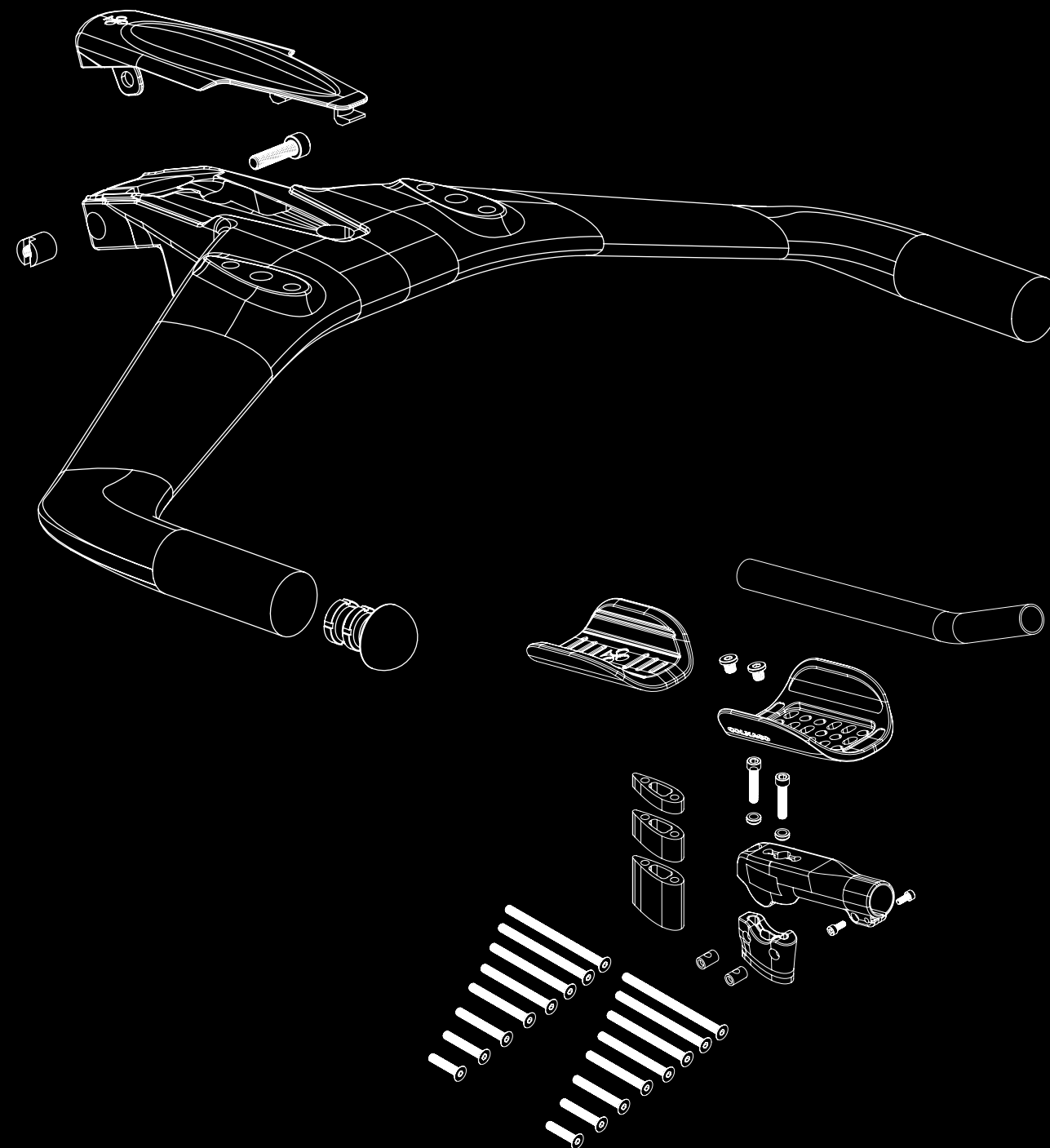


3. TT/PURSUIT SETUP

For time trial and pursuit events, the T1Rs can be equipped with the TT-TRACK cockpit and Colnago extensions, developed specifically to optimize aerodynamics and rider positioning in extreme racing conditions.

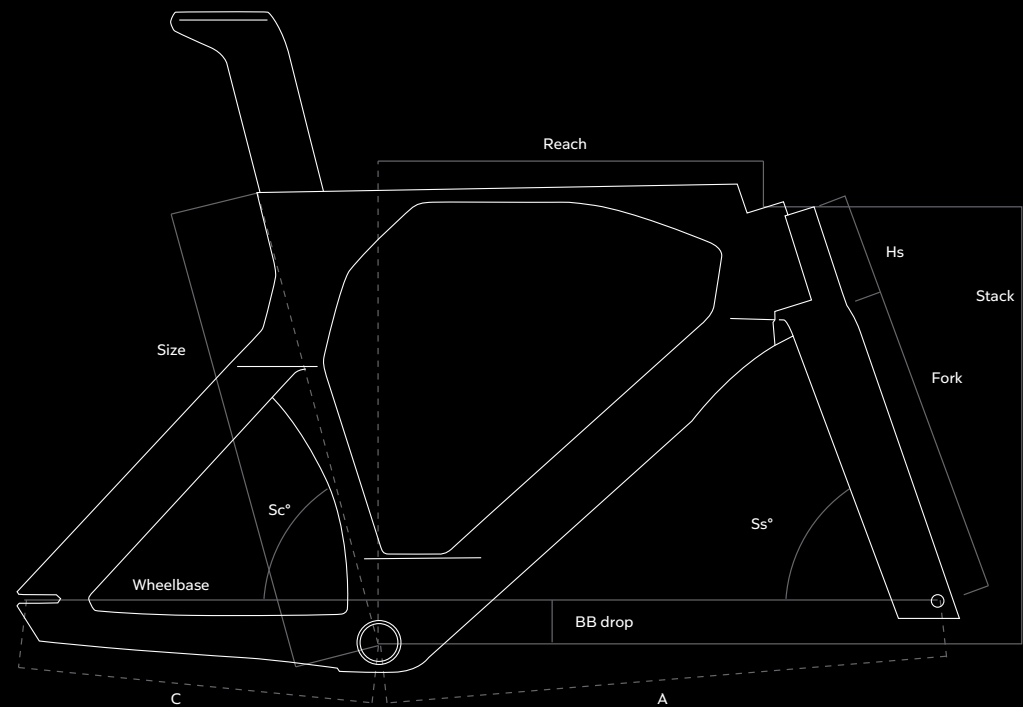
Key features:

- Monocoque carbon stem + base bar unit for maximum stiffness and seamless aerodynamic integration.
Geometry:
 - **Width:** 380 mm
 - **Stack at the hoods:** -17 mm (relative to the frame)
 - **Column base:** Reach 93 mm, Stack +25 mm (relative to the frame)
- Modular aero extensions, allowing multiple hand positions and optimized ergonomics
- Integrated mount for cycling computers or race transponders





4. GEOMETRY



Size	Stack	Reach	Ss°	Sc°	A	C	Wheelbase	Hs	Rake	Fork Length	BB drop
S	468	417	73	77.5	594	387	977	75	44.5	372	55
M	494	430	73	77.5	614	387	997	100.5	44.5	372	55
L	520	461	73	76.5	652	387	1036	121	44.5	372	55

The T1Rs is available in three sizes, designed to meet the specific demands of different track race types:

PURSUIT RACES

- Reach/stack ratio specifically developed to match the needs of pursuit riders
- Low-stack cockpit setup enables a tucked position during acceleration phases

ENDURANCE / SPRINT RACES

- Extended reach (front end reaches UCI limit for size L) to ensure optimal rider positioning
- Thanks to the SR-Track dual-bolt fixing system, excellent front-end torsional stiffness can be achieved even with long stems, close to the UCI front length limit. For this reason, the steering angle and fork rake of the T1Rs have been carefully tuned to provide high stability and precise control, even during sharp and rapid directional changes.

TECHNICAL INFO

- Front hub width 65 mm – 2 bolts
- Rear Hub width 100 mm – 2 nuts
- Bottom Bracket T47 Asymmetric
- Tyre clearance up to 28 mm
- Max chainring 72T



We are the Ace of Cycling.

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thriving and pioneer experiences.

T1R5





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