

RIDE LIFE.
RIDE GIANT.

 **GIANT**



ALL-IN AERO.

Introducing the all-new Trinity Range



2016 TRINITY ADVANCED PRO

ALL-IN AERO

The all-new Trinity Advanced Pro is engineered to be the world's fastest triathlon bike. More than 250 frameset configurations were tested, refined, tested again. In the wind tunnel and on the road with Ironman pro Tim Van Berkel. AeroSystem Shaping Technology means that every tube shape and junction is meticulously sculpted for minimal drag. And the integrated AeroVault System not only makes it easy to store hydration and race essentials, but actually improves overall aerodynamics. It's all you need to win against the wind. All in one machine.

KEY PERFORMANCE FACTORS

1. Superior Aerodynamic Performance
2. Integrated AeroVault Hydration/Storage System
3. Triathlon-Specific Fit

TARGET RIDER

- Serious triathletes who want the highest aerodynamic performance along with integrated components for storing nutrition and on-ride essentials
- Aspiring triathletes who want a fast bike without compromising fit
- Amateur triathletes and cyclists transitioning from traditional road bikes and interested in their first triathlon-specific bike





2016 TRINITY ADVANCED PRO

ENGINEERED FOR RACE DAY

1 SUPERIOR AERODYNAMIC PERFORMANCE

Using extensive CFD analysis and dynamic wind tunnel testing, more than 250 different frame configurations were developed and tested before finalizing the 2016 Trinity Advanced Pro frameset. To provide triathletes the ultimate aerodynamic advantage without any UCI constraints, the Trinity Advanced Pro is engineered with triathlon-specific features and optimized with Giant's AeroSystem Shaping Technology. The result is the fastest Trinity ever.





2016 TRINITY ADVANCED PRO

DYNAMIC DEVELOPMENT

Beginning in 2010 with a 3D scan of Giant test rider and former professional racer Grischka Niermann, Giant and development partner Aero Concept Engineering created a new, dynamic approach to wind-tunnel testing using an exact 1:1 scale mannequin, aptly named “Grischka.”

Designed with anatomically correct articulating legs, this dynamic mannequin allows Giant engineers to measure not only pressure drag and friction drag, but the precise aerodynamic interaction that occurs between the rider and bicycle while in motion—a feat not achievable using CFD or industry-standard wind-tunnel testing. By using a dynamic mannequin rather than a human rider, Giant is able to perform consistent testing, eliminating unwanted variables such as changes in body position or pedaling cadence.

In addition to Grischka, a one-off aluminum CNC'd prototype frame was developed to give Giant engineers the ability to quickly test different frame and component designs in the wind tunnel.

Through this comprehensive process using both CFD analysis and dynamic wind tunnel development and testing, Giant engineers confidently optimized the Trinity Advanced Pro's AeroSystem frame design for real-world aerodynamic performance.



(From left to right) The development process begins with extensive analysis using Computational Fluid Dynamics (CFD). Dynamic testing in the wind tunnel using an aluminum prototype frame and the Grischka mannequin allows Giant engineers to test frame designs in real-world conditions. Production sample wind tunnel testing verifies Trinity's performance before commercial release.



2016 TRINITY ADVANCED PRO

AEROSYSTEM SHAPING TECHNOLOGY

Giant's AeroSystem Shaping Technology is an approach to frame design that analyzes the distinct airflow conditions each area of the frame encounters to maximize the performance of the frame as a cohesive unit. Every tube profile, position and junction has been engineered, developed and tested extensively to work together to minimize drag and control airflow across all relevant yaw angles.





2016 TRINITY ADVANCED PRO

TRIATHLON-SPECIFIC DESIGN

When compared to Trinity Advanced Pro's TT configuration, the triathlon-specific components reduce drag by an average of 15 watts at 50kph across 0-30 degrees yaw.



AERODRIVE TRI ADVANCED-GRADE HYBRID FORK

A triathlon-specific 5:1 airfoil fork and integrated stem design offers the ultimate aerodynamic performance and increased steering precision.



AERODRIVE TRI BASE BAR

Trinity's proprietary, triathlon-specific 5:1 airfoil composite base bar delivers the ultimate aerodynamic performance and features a reversible design, giving riders 40 millimeters of height adjustment.



SPEEDCONTROL BRAKE SYSTEM

Giant's proprietary, integrated SpeedControl brakes offer confident braking without sacrificing aerodynamics. The front brake is designed to match the profile and trailing edge of the AeroDrive fork. Refined internal cable routing hides housing completely from the wind, from lever to caliper. The rear brake features a proprietary fairing that saves 3 watts of drag at 50 kph, making it essentially drag-neutral.



2016 TRINITY ADVANCED PRO

2 INTEGRATED AEROVAULT SYSTEM

Triathletes must carefully manage hydration and nutrition needs on the bike. The AeroVault System delivers an engineered approach to hydration and storage that doesn't sacrifice aerodynamics. By developing the AeroVault System and Trinity frameset as a cohesive unit, this is the only triathlon bike tested that is actually faster with hydration and storage installed than it is without.



FRONT HYDRATION

AeroVault's front hydration unit provides athletes easy access without compromising an aerodynamic position on the bike. Offering 700mL or 450mL of volume depending on frame size, on-course refills are also made easy via a quick access port at the top of the unit.



TOPTUBE STORAGE

Carefully hidden behind the stem and integrated into the toptube, the storage box provides 290mL of storage capacity for on-bike nutrition or spare items. The integrated design not only improves aerodynamic performance but also improves standover height—a common weakness with aftermarket options. The soft cover is designed to allow access from either side of the box while keeping sweat out. On Shimano Di2 models, the storage box also houses the junction box for easy adjustments and recharging.



DOWNTUBE BOTTLE

With a trailing edge that transitions from sharp to flat, Trinity's down tube is specifically designed to hide the AeroVault bottle from the wind—giving athletes a secondary hydration source with 440mL of capacity.



2016 TRINITY ADVANCED PRO

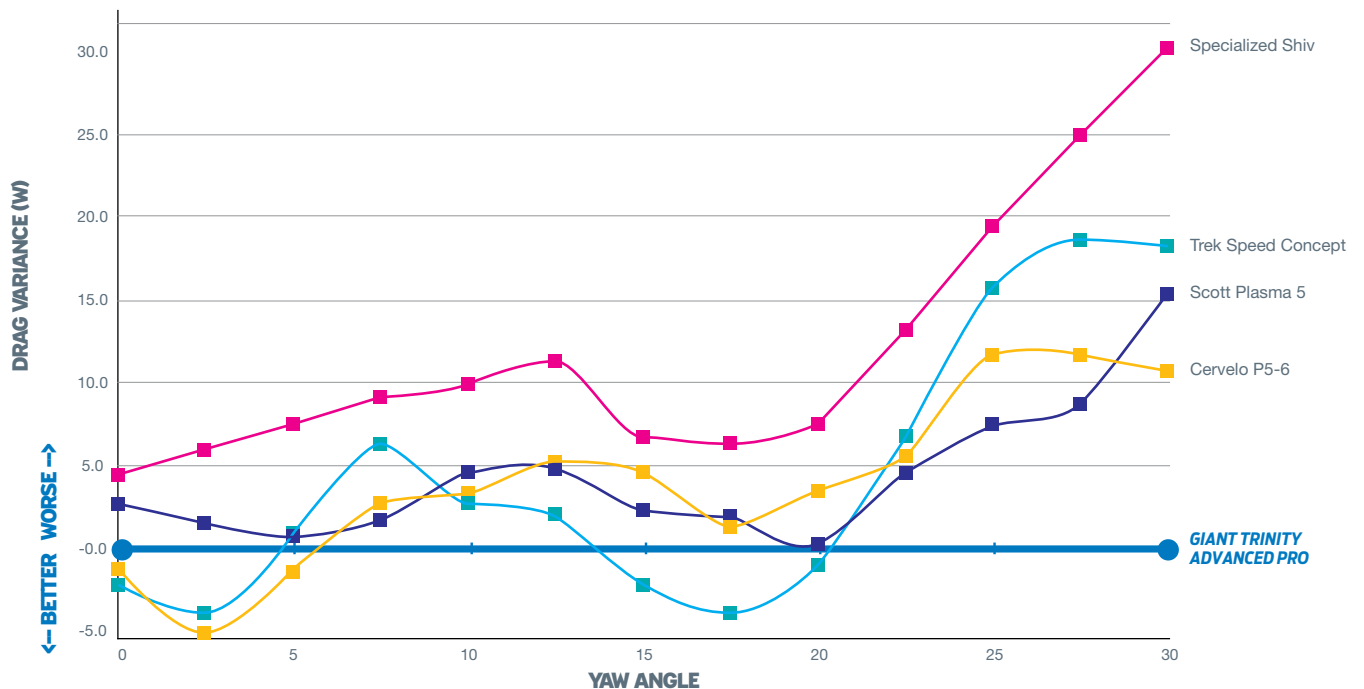
WIND TUNNEL TESTING

To validate Trinity's aerodynamic performance as a complete system, Trinity and four key competitors were tested at ACE wind tunnel in Magny-Cours, France. Each bike was tested with and without its corresponding hydration and storage components to determine the most accurate aerodynamic performance in a **race-ready configuration**.

Developed with AeroVault as a cohesive unit, the Trinity Advanced Pro was the only bike that was more aerodynamic with its hydration and storage components installed than without.

*See appendix for complete testing protocol and bike configuration

DRAG COMPARED TO GIANT TRINITY LINE 0 = GIANT TRINITY ADVANCED PRO





2016 TRINITY ADVANCED PRO

AVERAGE DRAG: 0-30 YAW ANGLE

RANK	MODEL	AVERAGE DRAG BARE BIKE (W): LOWER IS BETTER	AVERAGE DRAG RACE-READY (W): LOWER IS BETTER	TIME DIFFERENCE RACE-READY (S/KM): LOWER IS BETTER
1	Giant Trinity Advanced Pro	317.9	316.8 (-1.1)	-
2	Cervelo P5	310.9	321.3 (+10.4)	+0.43
3	Scott Plasma 5	317.9	321.6 (+3.7)	+0.43
4	Trek Speed Concept	321.5	321.7 (+0.2)	+0.49
5	Specialized Shiv	319.3	329 (+9.7)	+1.06





2016 TRINITY ADVANCED PRO

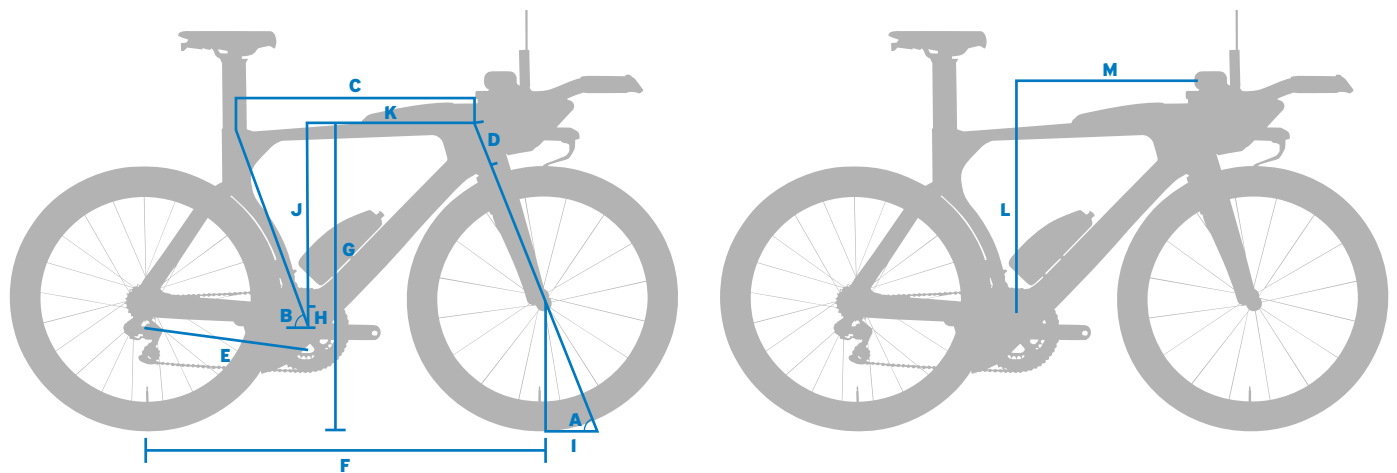
3 TRIATHLON-SPECIFIC FIT

The grueling distance of triathlon competition requires riders to balance aerodynamic performance with comfort. The 2016 Trinity Advanced Pro features improved geometry and functionality for triathletes to help riders achieve their ideal fit. Along with refined frame geometry, Trinity Advanced Pro's cockpit design features a wider range of adjustability and a simplified assembly.

REFINED FRAME GEOMETRY

Working with our global community of athletes and bike fit professionals, Giant engineers reevaluated and refined Trinity's frame geometry to meet the needs of triathletes of all sizes, shapes and fitness levels. Now offered in four frame sizes rather than three, Trinity Advanced Pro provides a wider overall fit range than before.

Trinity's proprietary 80-millimeter length AeroDrive stem is better optimized for bike handling from the extensions, and features a triathlon-specific design with 30 millimeters of additional rise compared to the AeroDrive TT stem.



LABEL	TRINITY ADVANCED PRO / TRINITY ADVANCED GEOMETRY					
	Frame Size		XS	S	M	L
A	Head Angle	Degrees	73.0	73.0	73.0	73.0
B	Seat Angle	Degrees	74.7/76.2/78	74.7/76.2/78	74.7/76.2/78	74.7/76.2/78
C	Toptube	Centimeters	56.8	58.0	60.2	60.8
D	Headtube	Centimeters	8.0	11.0	14.0	17.0
E	Chainstay	Centimeters	40.5	40.5	40.5	40.5
F	Wheelbase	Centimeters	96.7	98.8	100.3	101.8
G	Standover Height	Centimeters	74.2	76.7	79.0	83.6
H	B.B. Drop	Centimeters	6.5	6.5	6.5	6.5
I	Trail	Centimeters	6.1	6.1	6.1	6.1
J	Stack	Centimeters	48.2	51.0	53.9	56.8
K	Reach	Centimeters	39.8	41.0	41.7	42.3
L	Armrest Stack (Triathlon)	Centimeters	55.0 - 58.0	58.0 - 61.0	61.0 - 64.0	64.0 - 67.0
L	Armrest Stack (TT)	Centimeters	52.2 - 55.2	55.2 - 58.2	58.2 - 61.2	61.2 - 64.2
M	Armrest Reach (Triathlon)	Centimeters	40.3 - 46.3	41.5 - 47.5	42.2 - 48.2	42.8 - 48.8
M	Armrest Reach (TT)	Centimeters	41.1 - 47.1	42.3 - 48.3	43.0 - 49.0	43.6 - 49.6



2016 TRINITY ADVANCED PRO

IMPROVED ADJUSTMENT RANGE



In addition to refined frame geometry, Giant engineers improved the range of adjustability while simplifying the cockpit configuration to fit a wider range of riders more easily.

AERODRIVE TRI BASE BAR

Trinity Advanced Pro's proprietary AeroDrive Tri composite base bar features a triathlon-specific 5:1 airfoil design. With a reversible design, the single handlebar offers either 20 millimeters of drop or rise.

- Height range: 40mm (-20/20mm)

ARMRESTS

Trinity's armrests are adjustable from 10 to 40 millimeters of stack height.

- Stack range: 10-40-millimeters (10mm increments)

EXTENSIONS

Trinity's composite extensions feature 100mm of fore and aft adjustment.



ARMRESTS

Trinity Advanced Pro's armrests feature a wide range of fore/aft, lateral and rotational adjustment. In addition to increased adjustment range, Trinity Advanced Pro's armrests are 20 millimeters longer than the previous design.

- Width range (three settings): 210/240mm, 240/270mm, 270/300mm

- Fore/aft adjustment range: 60mm

- Rotation range: 0-10 degrees

EXTENSIONS

By swapping the mounts, Trinity Advanced Pro's extensions can be positioned at two different width settings. Designed for industry-standard 22.2-millimeter extensions, Trinity Advanced Pro can be used with a vast number of aftermarket bend options.

- Width settings: 100/170mm



2016 TRINITY ADVANCED PRO

APPENDIX

WIND TUNNEL TESTING - ACE WIND TUNNEL – MAGNY-COURS, FRANCE

A critical component of Trinity's development was comparative testing at the ACE wind tunnel to verify performance. Originally built for Formula 1 race car development, the ACE wind tunnel is constantly developing cutting-edge technology to offer the most realistic testing with an unmatched level of accuracy and consistency.

In contrast to some competitors, ACE features a closed loop wind tunnel design constructed entirely of steel and concrete. The closed loop design and consistent materials mean greater control over wind speed and energy with virtually no effect from outside variables such as humidity and temperature. Featuring boundary layer suction in front of the bicycle test bench, the ACE wind tunnel further minimizes turbulence and better simulates real world conditions.

Each bike was tested at 50 kph across 0-30 degree yaw angles in 2.5-degree increments.





2016 TRINITY ADVANCED PRO

APPENDIX

TEST SAMPLE SPECIFICATION

To ensure the most accurate testing possible, each bicycle was set up with identical fit measurements allowing Grisca to achieve a consistent body position. Additionally, each bike was set up with identical drivetrain components to eliminate any variables outside of each bike's proprietary features.

"RACE-READY" COMPONENT SPECIFICATION

To best simulate real-world performance, each bike was configured with its corresponding proprietary hydration and storage components. Where proprietary components and accessories were not offered, the most-popular aftermarket accessories were utilized.

	TRINITY ADVANCED PRO 0	TREK SPEED CONCEPT 9.9	SPECIALIZED S-WORKS SHIV D12	CERVELO P5 SIX DURA-ACE D12	SCOTT PLASMA TEAM ISSUE BIKE
Sizes	Small	Small	Small	Small/51cm	Small/52cm
Handlebar	AeroDrive Tri composite base bar 5:1 airfoil	Bontrager Speed Concept full foil aero bar, carbon, direct mount	Specialized Carbon AeroBar	3T Aduro, direct mount	Profile T5+
Stem	AeroDrive Tri, alloy	Bontrager Speed Concept, direct mount	Shiv Aerostem	3T	Profile Plasma 5 TRI, 30°, 85mm
Seatpost	Giant Trinity	Bontrager Speed Concept Race X Lite, carbon, +/-15mm offset	Shiv Aero, FACT Carbon, +/-12.5mm and +/-37.5mm setback	Cervélo Carbon, Aero, Rail-Adjust	Plasma HMX with Ritchey WCS clamp
Saddle	Proprietary Saddle for Grisca	Proprietary Saddle for Grisca	Proprietary Saddle for Grisca	Proprietary Saddle for Grisca	Proprietary Saddle for Grisca
Pedals	Shimano Dura-Ace	Shimano Dura-Ace	Shimano Dura-Ace	Shimano Dura-Ace	Shimano Dura-Ace
Front Derailleur	None - Chain tensioner	None - Chain tensioner	None - Chain tensioner	None - Chain tensioner	None - Chain tensioner
Rear Derailleur	None - Chain tensioner	None - Chain tensioner	None - Chain tensioner	None - Chain tensioner	None - Chain tensioner
Shifters	None - Integrated w/ Grisca	None - Integrated w/ Grisca	None - Integrated w/ Grisca	None - Integrated w/ Grisca	None - Integrated w/ Grisca
Brakes	Giant SpeedControl SL	Integrated	Magura RT8	Integrated/Magura RT8	Front: SCOTT TKB136 Rear: Shimano Dura Ace, direct mount
Brake Levers	Shimano Dura-Ace D12	Bontrager Speed Limit integrated brakes, Shimano Dura-Ace D12, bar end control levers	Magura RT8	Magura RT8	Shimano Dura-Ace
Cassette	Shimano Dura-Ace, 11-25t	Shimano Dura-Ace, 11-25t	Shimano Dura-Ace, 11-25t	Shimano Dura-Ace, 11-25t	Shimano Dura-Ace, 11-25t
Chain	KMC	KMC	KMC	KMC	KMC
Crankset	Shimano Dura-Ace, 53/39t, 175mm	Shimano Dura-Ace, 53/39t, 175mm	Shimano Dura-Ace, 53/39t, 175mm	Shimano Dura-Ace, 53/39t, 175mm	Shimano Dura-Ace, 53/39t, 175mm
Front	Zipp 808 Firecrest Carbon Clincher	Zipp 808 Firecrest Carbon Clincher	Zipp 808 Firecrest Carbon Clincher	Zipp 808 Firecrest Carbon Clincher	Zipp 808 Firecrest Carbon Clincher
Rear	Zipp 808 Firecrest Carbon Clincher	Zipp 808 Firecrest Carbon Clincher	Zipp 808 Firecrest Carbon Clincher	Zipp 808 Firecrest Carbon Clincher	Zipp 808 Firecrest Carbon Clincher
Tires	Zipp Tangete Speed , 23mm	Zipp Tangete Speed , 23mm	Zipp Tangete Speed , 23mm	Zipp Tangete Speed , 23mm	Zipp Tangete Speed , 23mm
Front Hydration	AeroVault Front Hydration	Profile Design HC	Specialized Fuelselage	Profile Design AeroDrink	Plasma 5 Aero Drink
Downtube Bottle	AeroVault Downtube Bottle	Elite Crono CX	None	Elite Crono CX	Elite Crono CX
Storage Box	AeroVault Toptube Box	Bontrager Speed Box	Specialized Fuelcell	Profile Design Aero E-Pack	Plasma Storage Box



2016 TRINITY RANGE HIGHLIGHTS

**TRINITY ADVANCED PRO
TRINITY ADVANCED
TRINITY ADVANCED PRO TT FRAMESET**



TRINITY ADVANCED PRO

ACE AN IRONMAN. SHAVE MINUTES OFF YOUR PR. THIS CUTTING-EDGE AERO TRI BIKE IS ENGINEERED TO MAKE YOU FASTER.

The all-new Trinity Advanced Pro is designed to be the world's fastest triathlon bike in real-world race conditions. Completely re-engineered using Computational Fluid Dynamics and extensive wind-tunnel testing, it delivers supreme aerodynamic performance in a race-ready package. Handcrafted from premium Advanced-grade composite material featuring AeroSystem Shaping Technology, the frame and AeroDrive fork help you slice through the wind with a fine-tuned, comfortable fit that excels at any distance. And its unique AeroVault System features an integrated front hydration unit, toptube storage box and downtube water bottle that, together, improve the bike's overall aerodynamic performance.



TECHNOLOGY

1 ADVANCED-GRADE COMPOSITE

High Performance-Grade raw carbon fiber and Giant's proprietary resin formula is used to produce custom composite material in our own composite factory that is extremely lightweight, stiff and compliant.

2 AEROSYSTEM SHAPING TECHNOLOGY

Through CFD and dynamic wind-tunnel testing, engineers optimize each tube shape to deliver superior aerodynamic performance.

3 AERODRIVE TRI ADVANCED-GRADE HYBRID FORK

A triathlon-specific 5:1 airfoil fork and integrated stem design offers the ultimate aerodynamic performance and increased steering precision.

4 AERODRIVE TRI COMPOSITE BASE BAR

Trinity's proprietary, triathlon-specific 5:1 airfoil base bar delivers the ultimate in aerodynamic performance and features a reversible design, giving riders 40-millimeters of height adjustment.

5 POWERCORE

A massively oversized bottom-bracket/chainstay area features a fully integrated, 92-millimeter-wide bottom-bracket design. Asymmetric chainstays provide additional stiffness on the driveside and stability on the non-driveside.

6 AEROVAULT SYSTEM

Developed concurrently with the frameset using CFD analysis and wind-tunnel testing, AeroVault delivers a hydration and storage solution that also increases Trinity's aerodynamic performance.

7 SPEEDCONTROL

Giant's proprietary braking system provides powerful stopping power with an integrated aerodynamic design.

8 REFINED INTERNAL CABLE ROUTING

All-new internal cable routing hides derailleurs and brake housing from the wind for maximum aerodynamic advantage and improved aesthetics.



TRINITY ADVANCED

TRAIN HARDER, RACE FASTER. THIS ALL-NEW TRI MACHINE COMBINES FINE-TUNED COMFORT AND POSITIONING WITH WIND-SLICING AERODYNAMICS.

The all-new Trinity Advanced is built to help you achieve your triathlon goals. From first timers to Ironman warriors, it has the aero engineering and adjustability to put you in the perfect position on the road. Built with Advanced-grade composite material featuring AeroSystem Shaping Technology, the frameset was developed and fine-tuned through extensive wind-tunnel analysis. The Contact alloy base bar offers adjustable comfort, and the SpeedControl brakes give you confident control without sacrificing aero performance.



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3 ADVANCED-GRADE HYBRID FORK

Advanced-grade composite legs and an alloy steerer tube deliver a lightweight design and precise steering.

4 CONTACT BASE BAR

Giant's Contact base bar configuration offers maximum adjustability and ease of use.

5 POWERCORE

A massively oversized bottom-bracket/chainstay area features a fully integrated, 92-millimeter-wide bottom-bracket design. Asymmetric chainstays provide additional stiffness on the driveside and stability on the non-driveside.

6 SPEEDCONTROL

Giant's proprietary braking system provides powerful stopping power with an integrated aerodynamic design.

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All-new internal cable routing hides derailleurs and brake housing from the wind for maximum aerodynamic advantage and improved aesthetics.



TRINITY ADVANCED PRO TT FRAMESET

BUILT TO GIVE YOU THE FULL AERO ADVANTAGE—AND FULLY LEGAL FOR TT RACING. TESTED AND PROVEN BY PROS, THIS IS HOW YOU BEAT THE CLOCK.

The all-new Trinity Advanced Pro TT was designed and developed with input from Team Giant-Alpecin's top time trial specialists. Proven through major wins at prestigious events including the Vuelta a España, it's engineered with Advanced-grade composite material featuring AeroSystem Shaping Technology. The frameset includes a UCI-legal fork setup, the AeroVault downtube water bottle, a specially designed AeroDrive TT composite base bar, and SpeedControl SL brakes.



TECHNOLOGY

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High Performance-Grade raw carbon fiber and Giant's proprietary resin formula is used to produce custom composite material in our own composite factory that is extremely lightweight, stiff and compliant.

2 AEROSYSTEM SHAPING TECHNOLOGY

Through CFD and dynamic wind-tunnel testing, engineers optimize each tube shape to deliver superior aerodynamic performance.

3 AERODRIVE TT ADVANCED-GRADE HYBRID FORK

A UCI-legal 3:1 airfoil fork and integrated stem design delivers a seamless aerodynamic profile and increased steering precision.

4 AERODRIVE TT COMPOSITE BASE BAR

Trinity's proprietary, UCI-legal 3:1 airfoil AeroDrive base bar is optimized for aerodynamic performance and features a reversible design, giving riders 40-millimeters of height adjustment.

5 POWERCORE

A massively oversized bottom-bracket/chainstay area features a fully integrated, 92-millimeter-wide bottom-bracket design. Asymmetric chainstays provide additional stiffness on the driveside and stability on the non-driveside.

6 AEROVAULT WATER BOTTLE

Developed concurrently with the Trinity frameset, the AeroVault water bottle integrates with the airfoil shape of the downtube, blending into the airflow wake and becoming essentially invisible to the wind.

7 SPEEDCONTROL

Giant's proprietary braking system provides powerful stopping power with an integrated aerodynamic design.

8 REFINED INTERNAL CABLE ROUTING

All-new internal cable routing hides derailleur and brake housing from the wind for maximum aerodynamic advantage and improved aesthetics.



**RIDE LIFE.
RIDE GIANT.**



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