



# MERCURIO and ACCELERO: the next generation of wheelsets

3T has launched a program of next-generation racing wheelsets. MERCURIO tubular and ACCELERO clincher wheels are designed to better previous wheels in all key performance metrics. They are strong, light, low-drag, stiff, easy to use and maintain, and promise a long service life. 3T engineers employed a whole-system approach to ensure that every parameter of the wheels' design contributes to the overall performance: no one parameter is exaggerated to the detriment of others. MERCURIO and ACCELERO synthesize innovative engineering solutions into an harmonious whole that takes racing wheelsets into the next generation.



## 1 Aerodynamics: optimized for the real world

3T wheels are clean-sheet designs that benefit from accrued practical experience of highly-aerodynamic wheels for racing. Overall drag is as low as the best wheels, but their aero design is optimized for stability in the random airflow of real-world conditions. Drag is consistently low throughout the range of yaw angles encountered, with no sudden, destabilizing pressure transitions in veering winds. Their design builds out from this top aero performance with other engineering innovations that better existing solutions.

## 2 Weight: competitive with the best

Low weight is clearly a key target for a racing wheelset – other things being equal. But lightness must not compromise strength. 3T's experience in advanced composites engineering meant that target strength was easily achieved with a 60-mm deep tubular rim of less than 400 g. All-up weight of the MERCURIO LTD 60 wheelset is just under 1400 g. It passed the UCI laboratory impact test with ease.



## 3 Inertia: low weight where it pays off

A light all-up weight does not automatically translate into better performance. It's vital to reduce weight where it pays off best, at the perimeter. Wheels that are lighter at the perimeter have lower inertia, so accelerate faster: riders say they 'spin up' quicker. Two factors make 3T wheels light at the perimeter. First, rims employ leading composites technology and have the best strength:weight ratio available. Second, the spokes are reversed, so the relatively heavy nipples are at the hub end of the spoke and add no weight at the rim.

## 4 Stiffness: delivered by overall system design

Stiff wheels transfer power more effectively and confer better handling. 3T rims are laterally stiff in all 3 depths (40, 60, and 80 mm). Overall wheel stiffness is achieved by careful system design. At the rim, straight spokes fit into 'pockets' in the sidewall, a 3T innovation that eliminates drilled spoke-holes. Drillings are a stress riser and require extra rim-wall thickness for reinforcement. The spoke-pocket adds no weight and permits the spokes to exit the rim on one side and cross over to the opposite hub flange with zero deflection. This obviates a common cause of failure, where spokes bend as they exit nipples placed in central rim drillings.





## 5 Hubs: high-precision machining, aerospace bearings

All wheels employ a proven, long-life hub design owned and manufactured by 3T. Hub bodies are machined on a high-precision, 5-axis CNC rig. Bearing seats are co-machined for perfect alignment. Standard bearings are aerospace-grade items made in Japan, with the potential for substitution by ceramic or other top-grade units. The rear hub has a tall flange on the drive side, imparting a wide bracing angle to the spokes. Spokes are tightened by large, easily accessed nipples at the hub flanges (nuts in fact) and can reliably sustain high tension because their path from hub to rim is perfectly straight.

## 6 Braking: consistency is key

3T wheelsets do not suffer from the poor braking performance of most carbon-fiber wheels. Rims have a proprietary, F1-derived 'surfacing veil' at the braking surface, resulting in wet-weather performance curves almost identical to the dry-weather curve. The co-efficient of friction is consistent throughout both ranges, so braking is firm and predictable in wet, dry and intermediate conditions, among the best the brake-test laboratory had ever tested. This makes braking trustworthy when it really counts, such as on a rainy descent in a large group. The braking surface is also highly resistant to abrasion, which should promote long life.



## 7 Freehub: supports Shimano, SRAM, and Campy

3T MERCURIO and ACCELERO wheelsets are easy to maintain and keep on the road, for pro and amateur. Unique to 3T, the patented freehub spline accepts Shimano, SRAM and Campagnolo cassettes with no adaptation – a major benefit for amateurs who wish to share wheels between bikes with different transmission setups. Vendors do not need to stock duplicate wheelsets or fiddly conversion kits. Additionally, the hub's unique spoking offers the benefit of easy truing or spoke replacement without dismounting the tire – of great interest to the pro mech.

# A complete range for all riders

3T plans to roll out a full range of carbon-fiber, hybrid and alloy wheelsets, in both tubular and clincher formats. The program in full comprises:

LTD	TEAM	PRO
MERCURIO 80 Tubular carbon		
MERCURIO 60 Tubular carbon		
MERCURIO 40 Tubular carbon		
ACCELERO 60 Clincher carbon	ACCELERO 60 Clincher hybrid	
ACCELERO 40 Clincher carbon	ACCELERO 40 Clincher hybrid	ACCELERO 40 Clincher alloy

