



GERMAN ENGINEERING & DESIGN

REACTO

AERODYNAMICS
REFINED



M.O.R.E. BIKE

REACTO

A E R O D Y N A M I C S R E F I N E D

The king is dead, long live the king! According to this motto, our test and award-winning aero bike, the 'old' REACTO is history. However, fear not, we have not just abolished our aero machine but have completely redesigned it, allowing the new 2021 REACTO to take its place on the throne and to be once again one of the leading bikes in its class.

Based on the DNA of the previous model, which was highly praised by the press for having 'very good aerodynamics', being 'comfortable for an aero bike' and offering 'stable riding characteristics', for what added up to a super impressive 1.5 score in the TOUR (3-2019) magazine test, we have created our new REACTO. In its latest version, we have combined these class-leading characteristics and have combined them with the latest innovations and trends to take it once again to the front of the peloton.

I N T E N D E D U S E

We all love going fast, and one of the most efficient bikes to turn your muscle power into forward motion, has been our test and race-proven REACTO. The flagship of Team Bahrain McLaren and the trusted companion of thousands of racers and road riding enthusiasts, the current REACTO is saying its farewell to make room for the exciting new version of our aero bike. We have revised, optimised and redesigned our aero road bike to get it ready for the new decade. With the 4th generation of our MERIDA REACTO, we offer one of the most balanced racing machines in the market. The new REACTO will once again deliver tons of fun and begs you to ride fast – all the time. With a clean design, optimised aerodynamics, cockpit cable integration, tyre clearance for up to 30 mm wide tyres, the well-proven MERIDA S-FLEX seat post for maximum comfort and for an aero road bike very lightweight frame, it offers everything a modern aero bike needs to bring to the table.



R & D F O C U S

Improving aerodynamics was the main target of the new REACTO. With its predecessor, the 2018 launched Reacto III, delivering almost unrivalled aerodynamic performance, this was one of the most difficult jobs in the overall development process of the REACTO IV. But being at the sharp end of bicycle development, even the most incremental improvements of certain aspects can deliver real progress when looking at the end result.

For developing the new REACTO, aerodynamic performance was for sure one of the key points. But during the development process, we never lost sight of its overall performance. So the goal was not just to make it even more effective in the fight against the wind, but to increase its overall performance and making it a faster bike in every situation. Stiffness, lightweight, comfort – these demands don't always go hand in hand with achieving aerodynamic perfection – so the challenge was to find the perfect compromise amongst all these possibilities. With the new REACTO, we created a great performing all-rounder – with class-leading aerodynamic performance.

TWO EXAMPLES OF THIS

1. More tyre width has to be paid for with reduced aerodynamic performance – but you would not want to miss the advantages of wider tyres, especially on rougher roads. So the new REACTO will be able to play out its aerodynamic advantage also on the cobblestone classics of the North – or on the idyllic but potholed littered lanes of your favourite training ride.
2. With a deeper seat post and seat tube profile – similar to our WARP TT seat post – we would have been able to further reduce aerodynamic drag – but only at the high cost of having a negative effect on overall weight and riding comfort.

C F D O P T I M I S E D

By using Computational Fluid Dynamics (CFD) we optimised the new REACTO in a virtual wind tunnel. CFD calculations helped to locate potential aspects to optimise aerodynamic performance. Therefore, we primarily focussed on reducing flow separations, especially under sidewind conditions, thereby reducing the base drag level, and improving the sailing effect – the drag reduction when resulting airflow is not from the front (headwind) but attacks the rider from the side at a yaw angle.

We tested various different models (6), under multiple different flow angles (5), resulting in an extensive amount of results (total 30) of full bike CFD analyses. From CFD results, we were able to see which change brings which aero performance benefit:

- New fork design, smoothly integrated into the frame, brings a significant improvement (2 watts) **(2)**
- New handlebar design and removing all the cables (by completely integrating the cables into the cockpit and frame) not only looks super smooth but each integrated cable saves about 2 watts **(1/2)**
- Increased space between the rear tyre and the seat stays as well as the front tyre and the fork crown and blades to optimise the airflow in those key areas and with that have a positive effect on the aerodynamics. **(2)**
- A lower attachment point of the seat stays with the seat tube, reducing drag. **(3)**

Further small details:

1. Front disc cooler behind fork profile & better integrated; rear disc cooler integrated into the rear triangle **(7/10)**
2. New road through axles with the thread integrated into fork dropout not only looks super sleek but it also minimises drag and therefore improves aerodynamic performance **(3/6)**

These improvements enable us to over-compensate the aerodynamic compromises we had to make to give the bike bigger tyre clearance for increased comfort and a more voluminous headtube which would allow full cable integration and increased steering precision **(1/2)**. The end result: the most perfect package of comfort, aerodynamic, lightweight and style.



F I R S T C F D T H E N W I N D T U N N E L

After all CFD results were successfully implemented, we took our prototypes to be exposed to further tests in the wind tunnel. Tests were conducted following the standard of German TOUR magazine, including their 'moving leg dummy' test. Despite all the improvements on other aspects like comfort, weight and stiffness, which often counteract the aerodynamics advantages, the new REACTO is with 209 watts needed for 45 km/h, 1 watt faster than its predecessor, which was already outstanding in terms of aerodynamic performance. With this impressive result, the new REACTO is from its aerodynamic performance in the leading group of aero road bikes (that were ever tested by TOUR magazine), without showing any sign of the weaknesses of a 'pure aero road bike'. The new REACTO – MORE than 'just' an aero bike.

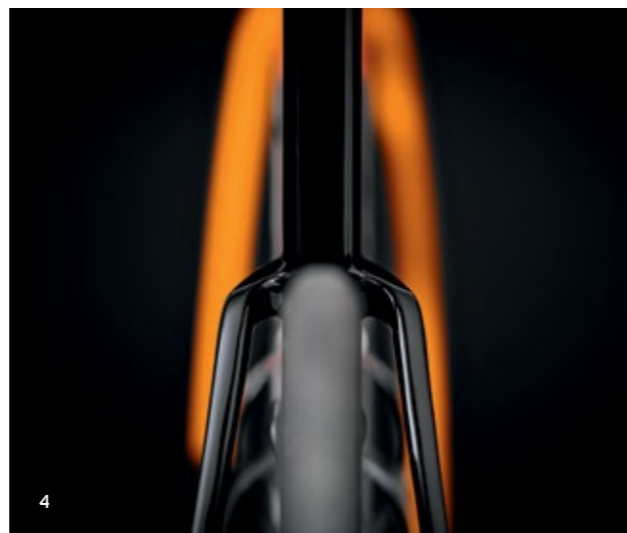
FRAME MATERIALS

The REACTO is a race machine and is only available in carbon. Carbon fibre offers greater flexibility when it comes to creating specific frame details than aluminium and also has weight advantages. The high-end models feature a CF5 level frame, and the more price economic models are equipped with the CF3 level. Both frame levels have the same geometry and features. The differences between the two frames are the fibres used and the time which was needed for developing the carbon layup. The CF5 level takes much longer to simulate and test the layup in comparison to the CF3 level. As a result, CF3 is slightly heavier but the stiffness and stability are on the same level.

- To include the latest standards in the new frame concept. **(4/5/6/7/8)**
- To include a cable integrated cockpit in the new frame concept. **(5)**
- To give the new frame plenty of tyre and toe clearance. **(4/9)**
- To make the bike more aerodynamic. **(4/5/10)**
- To make everything like a seat post clamp, through-axles, dropouts, cables look more integrated. **(5/6/7/8)**

WEIGHT FRAME / FORK

CF5 frame size M ca. 965 g / CF3 frame size M ca. 1145 g
 (+/- 3% depending on the paint job)
 CF5 fork 457 g / CF3 fork 490 g
 (+/- 3% depending on the paint job)



INTERFACES

- 1 1/2" to 1 1/4" headtube **(5)**
- 12 mm through-axle **(7)**
- PF86 BB
- CF5 frame has internal cable routing for electronic shifting only
- CF3 frame has internal cable routing for electronic and mechanical shifting options
- Flat mount disc **(7)**



DESIGN THINKING BEHIND THE BIKE

The REACTO is now in its 4th generation and has inherited a design language that it is only too keen to maintain. So, the target was to continue to look like a REACTO, but with a more modern and cleaner appearance and with an integration of all the latest standards.

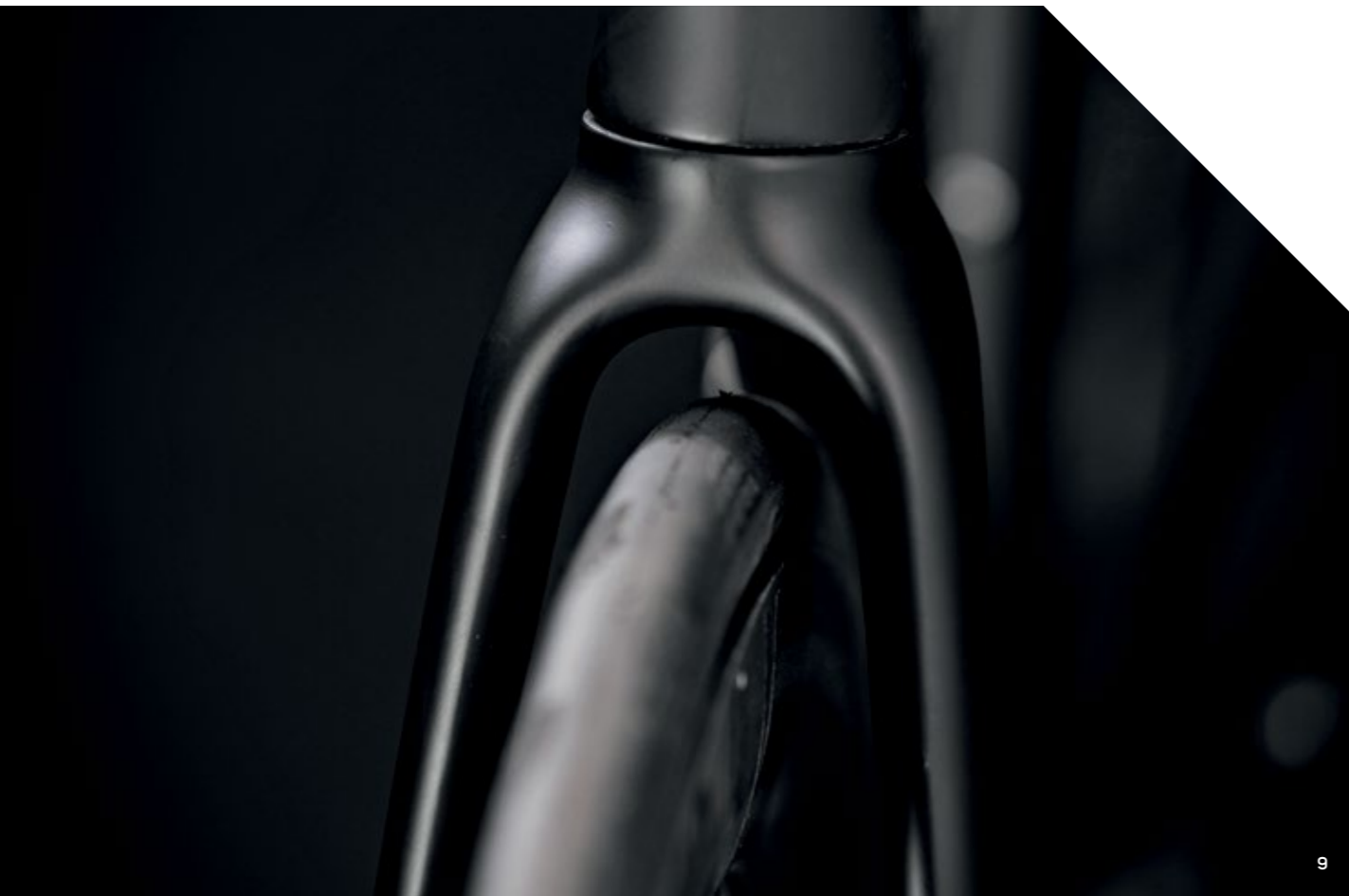
Decals
 Clean, modern, reduced, fast road race-oriented colours



GEOMETRY ADVANTAGES AND RIDING CHARACTERISTICS

With the new REACTO, we keep the race geometry of the previous model. But additionally, we add an 'XXS' size. So instead of 5 sizes, the new REACTO comes now in 6. Furthermore, we do not offer 'in-between' sizes and more. That means an 'S' frame is an 'S' frame, and an 'M' frame is an 'M' - in the past, we offered here 'S/M' and 'M/L' sizes.





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U S P O F T H E N E W B I K E

- Clean frame design
 - Complete cable integration
 - Integration of DISC COOLER & axle
 - Hidden seat post clamp
 - › Cover of the seat clamp mechanism
- Disc Cooler
 - Reduces the risk of the disc brakes to overheat, in particular on long descents, especially relevant in conjunction with the more economy-level disc brakes
- Tyre clearance for up to 30 mm wide tyres
- Integrated rear light
- NACA aero tube profile
- Best package in terms of aerodynamics, weight and comfort
- Adjustable seat angle because of 'FLIP FLOP HEAD' seat post design
- Shimano 'Direct Mount' hanger
- Frame and fork passed 'Zedler-Institut Advanced Plus' testing

U S P O F T H E V A R I O U S M O D E L S I N T H E R A N G E



REACTO TEAM-E

Shifter: Shimano Dura-Ace, hydraulic discs
 Rear Derailleur: Shimano Dura-Ace Di2, SS
 Rotor: Shimano RT900 Centerlock, 160 mm
 Wheelset: METRON 55 Clincher TL Disc
 - Through-axle front 100x12 mm/rear 142x12 mm
 - 18 IW, 48 RH, Centerlock
 - TLR
 Cassette: Shimano CS-9100
 - 11-30T, 11 Speed
 Tyre: Continental Grand Prix 5000, 700x25c, fold



REACTO 9000-E

Shifter: Sram Red eTAP AXS HRD
 Rear Derailleur: Sram Red eTAP AXS, SS
 Rotor: Sram DB ROTOR CLX R Centerlock, 160 mm
 Wheelset: DT Swiss ARC 1400 Dicut DB 50
 - Through axle front 100x12 mm/rear 142x12 mm
 - 18 IW, 50 RH, Centerlock
 - TLR
 Cassette: CS XG 1290 D1
 - 10-33T, 12 Speed
 Tyre: Continental Grand Prix 5000, 700x25C, fold



REACTO 8000-E

Shifter: Shimano Ultegra, hydraulic discs
 Rear Derailleur: Shimano Ultegra Di2, GS
 Rotor: Shimano RT800 Centerlock, 160 mm
 Wheelset: Reynolds AR 58 DB
 - Through axle front 100x12 mm/rear 142x12 mm
 - 21 IW, 58 RH, Centerlock
 - TLR
 Cassette: Shimano CS-8000
 - 11-30T, 11 Speed
 Tyre: Continental Grand Sport Race, 700x25C, fold



REACTO FORCE-EDITION

Shifter: Sram FORCE eTAP AXS HRD
 Rear Derailleur: Sram FORCE eTAP AXS, SS
 Rotor: Sram DB ROTOR CLX R Centerlock, 160 mm
 Wheelset: Reynolds AR 58 DB
 - Through axle front 100x12 mm/rear 142x12 mm
 - 21 IW, 58 RH, Centerlock
 - TLR
 Cassette: CS XG 1270 D1
 - 10-33T, 12 Speed
 Tyre: Continental Grand Sport Race, 700x25C, fold



REACTO 7000-E

Shifter: Shimano Ultegra, hydraulic disc
Rear Derailleur: Shimano Ultegra Di2, GS
Rotor: Shimano RT800 Centerlock, 160 mm
Wheelset: DT Swiss P1800 Spline DB32
 - Through axle front 100x12 mm/rear 142x12 mm
 - 18 IW, 32 RH, Centerlock
 - TLR
Cassette: Shimano CS-7000
 - 11-30T, 11 Speed
Tyre: Continental Grand Sport Race, 700x25C, fold



REACTO 6000

Shifter: Shimano Ultegra, hydraulic disc
Rear Derailleur: Shimano Ultegra, GS
Rotor: Shimano RT800 Centerlock, 160 mm
Wheelset: Fulcrum Racing 800 DB
 - Through axle front 100x12 mm/rear 142x12 mm
 - 19 IW, 34 RH, Centerlock
 - TLR
Cassette: Shimano CS-7000
 - 11-30T, 11 Speed
Tyre: Continental Grand Sport Race, 700x25C, fold



REACTO 5000

Shifter: Shimano Ultegra, hydraulic disc
Rear Derailleur: Shimano Ultegra, GS
Rotor: Shimano RT64; 160mm
Wheelset: MERIDA EXPERT CW
 - Through axle front 100x12/ rear 142x12
 - 19 IW, 30 RH, Centerlock
Cassette: Shimano CS-7000
 - 11-30T, 11 Speed
Tyre: Continental Ultra Sport III, 700x25C, fold



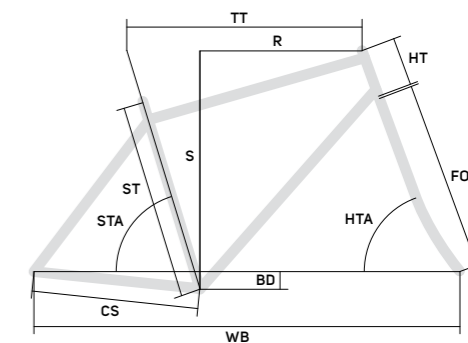
REACTO 4000

Shifter: Shimano 105, hydraulic disc
Rear Derailleur: Shimano 105, GS
Rotor: Shimano RT54 Centerlock, 160 mm
Wheelset: MERIDA EXPERT CW
 - Through axle front 100x12/ rear 142x12
 - 19 IW, 30 RH, Centerlock
Cassette: Shimano CS-7000
 - 11-30T, 11 Speed
Tyre: Continental Ultra Sport III, 700x25C, fold

REACTO

GEOMETRY DATA

FS Frame Size	XXS(47)	XS(50)	S (52)	M (54)	L(56)	XL(59)
TS Tire Size	28"	28"	28"	28"	28"	28"
ST seat tube [mm]	470	500	520	540	560	590
TT top tube [mm]	520	536	545	560	575	590
CS chain stay length [mm]	408	408	408	408	408	408
HTA head tube angle [°]	70.5	72	72.5	73.5	73.5	74
STA seat tube angle [°]	74.5	74	74	73.5	73	73
BD bottom bracket drop [mm]	70	70	66	66	66	66
HT head tube [mm]	105	112	128	140	155	176
FL fork length [mm]	385	385	385	385	385	385
R reach [mm]	377	384	390	395	400	409
S stack [mm]	517	529	542	557	571	593
WB wheel base [mm]	985	983	990	990	999	1010







MERIDA.com