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1. INTRODUCTION

A. PINARELLO
Founded in Treviso, in the northeast heart of Italy, by Giovanni “Nani” Pinarello, the company has been making the highest quality bikes since establishing in 1952. The Pinarello name evokes legendary and epic victories from the greatest cyclists of all time: Since the very first Giro d’Italia victory by Fausto Bertoglio in 1975, Pinarello has gone on to dominate the podium at Olympic Games, World Championships, monument Classics and of course, the Tour de France. Pinarello has always been synonymous with innovation and performance. The endless research for technical solutions to better integrate rider’s feedback has yielded for continued advancement of a new weapon of choice to Team Ineos’ performances. The PinaLab is proud to introduce our newest project: the Dogma F.

B. TEAM INEOS
Pinarello has proudly been the bike partner of team Ineos since its formation in 2009. At that time better known as Team Sky. This long-term partnership has lead to the creation of 9 different road bike projects as well as 3 time trial projects. The results of which have been a legacy of mutual success.

The primary feedback received from the team, aligns with Pinarello’s belief that the same bike used in cross-winds and on fast stages has to be the same bike for the queen stage and mountainous terrain. A perfect balance of aero, stiffness, and weight, allowing the team to maintain competitiveness in the Peloton.

C. GC BIKE
Pinarello is, by far the winningest of Gran Tour race brands.

Since the first GT victory in 1975, Pinarello has embodied the art of building the highest performing bikes for all terrains. Pro riders are given the ability to connect with the bike like no other. Hours and hours every day on the same bike have raised their level of discernment to the highest. Changing bikes between an aero and a climbing bike for example can have negative consequences for their cohesiveness with the ride and muscles. PinaLab has always been focused on one mission: create a single bike to handle all conditions.

The best combination of aerodynamics and lightweight efficiencies from the PinaLab is now named: the Dogma F.
2. SUMMARY OF THE IMPROVEMENTS

A. TARGET
Building the best Grand Tour winning bike requires constant innovation and research. Utilizing new materials guaranteeing the same or even improved stiffness, while decreasing the overall weight of the frameset. The goal is always the same: having a bike at its best on flat and windy stages, and ride the same for a crucial mountain stage. The Dogma F will offer both rim and disc brake options. With a different approach for each project, the rim has had specific development, as has the disc. There remains a significant number of Rim brake consumers and they continually ask us to develop high end frames specific for these systems. The rim brake riding experience still offers the “Pinarello riding feeling” and both brake versions for our highest end model is a must.
3. WEIGHT

A. FRAMESET
The total frameset weight has been improved considerably. The fork, handlebar and seatpost have been dramatically decreased weight-wise, with improvements on both aerodynamics and stiffness.

B. FRAME
The frame weight is now 9% lighter than the F12, without any adverse effect on the stiffness and aerodynamic quality.

C. FORK
The fork weight has been reduced by 16%. Pinarello safety standards always come first, we strive to maintain our quality and safety standards even with this weight reduction, which is mainly due to the new carbon fiber materials available today.

D. SEATPOST
The seatpost design has been modified to achieve a significant improvement weight wise, with better aero data. On top of that, a big improvement has been made on the seat top clamp. Now made of SLM (Selective Laser Melting) titanium, which is a consistent gram saving solution.

E. HANDLEBAR
A new carbon layup construction of the newest generation of carbon fiber has helped the Talon Ultra to have a 13% reduction in weight. Same safety protocol, same design, same stiffness data. Just lighter.
4. AERODYNAMIC

CFD
Development of the rim and disc frames as two separate bikes has resulted in improved aerodynamic performance of both. For the first time, the Dogma F disc has lower aero drag than the rim brake version (7.3% lower drag for Dogma F disc frame and fork than Dogma F rim):

<table>
<thead>
<tr>
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<th>TOTAL NO RIDER</th>
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<tr>
<td>Dogma F compared to Dogma F12</td>
<td>-0.6%</td>
<td>-3.2%</td>
<td>-7.5%</td>
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<tr>
<td>Dogma F disc compared to Dogma F12 disc</td>
<td>-1.1%</td>
<td>-4.8%</td>
<td>-8.7%</td>
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<tr>
<td>Dogma F disc Vs Dogma F</td>
<td>-0.2%</td>
<td>-0.8%</td>
<td>-7.3%</td>
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</table>

Implemented changes:
- Narrower seat tube and seat post, taking advantage of the UCI rules for 2021 reducing minimum tube width.
- New down tube cross sections improve aerodynamics of both the down tube and front bottle.
- Seat stays use new cross sections to improve interactions with rear wheel and are lowered (especially on disc version) reducing frontal area.
- Development of the fork profile and cross sections to improve interaction with the front wheel on the disc brake version.

1. -30% DRAG REDUCTION OF SEATPOST, COMPARED TO DOGMA F12
4. AERODYNAMIC

2. OPTIMIZATION STUDY WITH AUTOMATIC SOFTWARE. TESTED MORE THAN 30 CONFIGURATIONS AT 3 DIFFERENT YAW ANGLE.

Results:
- 12% drag reduction Vs Dogma F12
3. 2D AEROFOIL OPTIMIZATION

In the disc brake version PinaLab has optimized the shape of the section, asymmetric, and its distance from the rim. Below the C_d data comparison of different aero profiles with different rim distance.

Results:
- 25% average drag reduction Vs Dogma F12 (both disc and rim).
4. DISC BRAKE SECTION OPTIMITATION. 2D ANYALISIS FIRST, THEN 3D ONE FOR THE FINAL AND OPTIMAL RESULT.

Parameters definition

PinaLab collected 750 different configurations in order to optimize the result accomplished.
9 3D option chosen and tested
Same as for the rim section: 4 parameters, 3 yaw angles, 750 runs.
Optimization of the fitting spokes on the most promising configurations.

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<td>Rim</td>
<td>Fork</td>
<td>Tot</td>
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<tr>
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<td>0.0066</td>
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3mm Fillet | Tot | Rim | Fork | Tot | Rim | Fork | Tot | Rim | Fork |
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Results:
- Dogma F disc fork vs Dogma F12 disc fork: -12% drag
- Dogma F rim fork vs Dogma F12 rim fork: -8% drag
FEM
- FEM model (symplified)
- Purpose: ST, SP, SS drag reduction

- TT width
- Seat Tube Junction
- Lower SS - lower seatstays shows also more vertical compliance
- DT rotation to allow battery space

CONCLUSION: After complete data collection, the best solution is for 20mm seat tube width at the top junction. This conclusion brings an aero and weight advantage at the seatpost with just a 2.1% less bottom bracket stiffness.

The 15mm clockwise rotation of seat stays increases the bottom bracket stiffness to compensate the loss from the reduction of the seat tube width above for the aero and lightweight seatpost.
5. TECHNICAL SPECIFICATION

A. SPECIFICATION

DOGMA F DISC
• Carbon Toraya T1100 1K Dream Carbon with Nanoalloy Technology
• Asymmetric frame
• Onda Fork Dogma F with ForkFlap
• TiCR (total integrated cable routing)
• 1.5 upper and lower steerer
• Italian thread BB
• Seatclamp Twin Force
• 3D printed titanium top seatclamp
• 3XAir two positions option for the second bottle cage (as of 515 and above)
• FlatBack profile
• UCI approved
• Rad System disc brake
• TA142
• Disc flat mount max 160mm
• Max tire 622x28c
• Weight: 865g Size 530; raw frame (not painted)
• Electronic Groupsets Only

DOGMA F
• Carbon Toraya T1100 1K Dream Carbon with Nanoalloy Technology
• Asymmetric frame
• Onda fork Dogma F with ForkFlap
• TiCR (total integrated cable routing)
• 1.5 upper and lower steerer
• Italian thread BB
• Seatclamp Twin Force
• 3D printed titanium top seatclamp
• 3XAir two positions option for the second bottle cage (as of 515 and above)
• FlatBack profile
• UCI approved
• Direct mount rim brake
• Max tire 622x28c
• Weight: 860g Size 530; raw frame, not painted
• Electronic Groupsets Only
B. FRAMES SIZES

We build dream bikes. Pinarello has always offered a wide range of sizes, to better meet the needs of our customers. Bigger sizes are offered to better meet the needs of heavier stress and power. On the other end, smaller sizes with a material reduction to yield a lighter solution.

Dogma F rim and disc brakes share the same size chart and geometry, which is typically offered from Pinarello. This is our unique trademark of handling and responsiveness.

Due to the integrated headset top cap, reach and stack are calculated on top of the 9mm headset cap.

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<th>CC</th>
<th>L</th>
<th>A[°]</th>
<th>B[°]</th>
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<th>T</th>
<th>D</th>
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<th>G</th>
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C. TALON ULTRA

As mentioned before, same design with different carbon fiber making the new version 13% lighter. Below is the complete chart:

<table>
<thead>
<tr>
<th>Model Code</th>
<th>Description</th>
<th>Drop</th>
<th>Reach</th>
<th>Outward Bending</th>
<th>Weight</th>
<th>Cable Routing</th>
<th>Optional</th>
<th>Compatibility</th>
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DROP: 125mm
REACH: 80mm
OUTWARD BENDING: 4°
WEIGHT: 350g
CABLE ROUTING: TiCR
OPTIONAL: iTalon ULTRA

COMPATIBLE ONLY WITH PINARELLO DOGMA F/F12
6. RACING

A. UCI APPROVED
Both Dogma F rim and disc are UCI approved.

![UCI Approval](image)

B. DEBUT
Dogma F will start to race in June 2022 with Team Ineos Grenadiers, with the same goal as the previous Dogma generations: win.