



# TECH AND FACTS REPORT

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SCOTT SOLACE 2015



# SOLACE CONCEPT

The Solace has been designed to offer a comfortable ride without sacrificing immediate power transfer and direct handling abilities. To achieve this, SCOTT engineers designed a bike that consists of two specific “zones” that improve the comfort and power transfer characteristics of the Solace - The Comfort Zone and The Power Zone. However, it doesn't stop there: The Solace offers an endurance-optimized geometry that allows for a more comfortable riding position on the bike and countless hours in the saddle without any discomfort. Disc brakes are the latest addition to the Solace. They increase the braking performance and reliability considerably no matter the weather conditions you are riding in. The Solace has been consequently developed to offer a comfortable and reliable riding sensation to the demanding recreational cyclist.



## A HISTORY OF COMFORT

With the CR1, SCOTT introduced Shock Damping Technology (SDS). SDS combines specific tube designs, wall thicknesses, and Carbon lay-up to achieve a high lateral stiffness while at the same time enhancing comfort-relevant vertical compliance in both the rear triangle and the fork. As a result the CR1 has been appreciated by its riders for offering a high degree of comfort while not compromising on performance. At the same time, riding comfort of the CR1 was enhanced by means of an endurance geometry which allows the rider to take on a more upright position on the bike due to a longer headtube and a shorter toptube. With the Solace, SCOTT recently introduced a brand new endurance road bike that aims even higher.

## THE COMFORT EXPERTS

**Hermann Pacal, Product Manager**



“We developed the Solace for the ambitious everyday rider who is looking for a comfortable road bike with regards to both ergonomics and compliance. Why Solace? Because it's the source of comfort!”

**Benoit Grelier, Engineer**



“The Solace is the result of numerous development cycles that allowed us to test a variety of different solutions. We chose the solution that offers an uncompromised combination of comfort, stiffness and weight”

# SOLACE TECHNOLOGY

## THE COMFORT ZONE

The engineers at SCOTT spent a lot of time analyzing the compliance characteristics of bike frames as well as finding unique solutions that match the engineering philosophy of the Carbon experts in Switzerland. As shown in the 3D drawings below, the joint between the seatpost, toptube, seattube and seatstays is the most crucial point when a frame is examined with regards to comfort. Based on this finding, the engineers analyzed and tested different solutions with regards to tube shapes, the Carbon lay-up and the attachment of the seatstays. Resulting from this analytical work, the engineers came up with a unique frame design in the most critical area for compliance of the rear triangle. They decided to attach the seatstays directly to the toptube, considerably improving comfort without compromising headtube torsional stiffness. In addition, the

engineers intentionally left out the traditional bridge between the seatstays required to mount the rear brake to make sure that the comfort through seatstay deflection is not compromised. Optimizing comfort at the front of the frame proved to be no lesser challenge for the engineers. In order to provide a comfortable riding sensation, the fork needs to give in to vibrations arising from the ground while at the same time needing to resist forces that arise from braking. The top area of the fork, including the Carbon steerer and the crown has to be rigid for direct handling and safe braking. To determine the right balance between comfort-increasing deformation and stiffness for braking efficiency, different Carbon lay-ups were developed and tested before a decision for the final version of the fork was made.

Frame areas responsible for comfort are shown in bright colors



The Comfort Zone responsible for riding comfort is shown in red



SCOTT's unique solution for balanced vertical compliance of the rear triangle



## THE POWER ZONE

The most compliant frame does not help the rider if propulsion is neglected. That's why the engineers simultaneously analyzed compliance and power transfer properties of the frame while developing the Solace. The main frame areas responsible for power transfer emanate from the bottom bracket where the power of the rider is transferred to the bike and

from the headtube area where torsional forces of the rider apply- especially when riding out of the saddle. As a result of this analytical work the engineers defined a power zone where they applied rigid frame structures resulting in a tapered headtube, oversized downtube, a massive bottom bracket area and asymmetrical chainstays and seatstays.

Frame areas responsible for power transfer are shown in bright colors



The Power Zone responsible for power transfer is shown in red



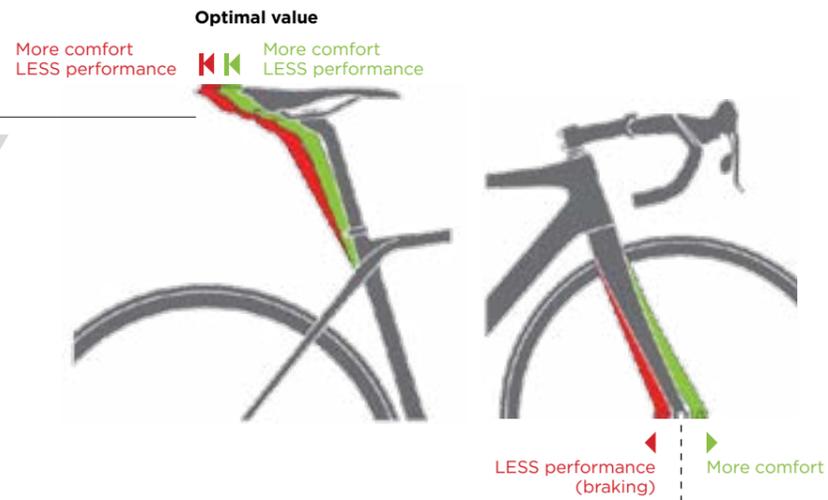
Reinforced headtube and steerer, a massive BB area and asymmetric rear stays considerably improve power transfer



### BALANCING OPPOSED FORCES

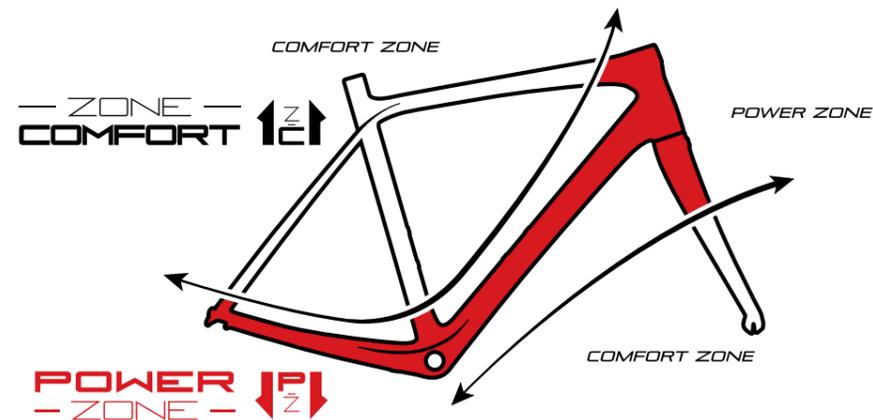
The Solace can be seen as having a split frame construction. While the Comfort Zone assures a comfortable riding sensation due to the absorption of shocks and vibrations arising from the ground, the Power Zone is comprised of laterally and torsionally rigid frame structures assuring maximum power transfer of rider-actuated forces. Obviously, comfort and power transfer need to be considered simultaneously when designing a bike. At a certain point compliance will begin to affect power transfer negatively and vice versa. That's why the engineers

at SCOTT spent a lot of time developing different lay-ups and collecting feedback from riders. Frames that offered a very high degree of deformation and consequently comfort were rejected by the testers as they felt power transfer was compromised substantially. This extensive testing procedure allowed the engineers to determine the best balance between comfort and power transfer. With the Solace, SCOTT presents a functional and visually unique endurance roadbike.



The engineers tested different lay-ups to find the right balance between comfort and power transfer/braking efficiency

The Solace balances frame areas responsible for comfort and power transfer



### ENDURANCE GEOMETRY

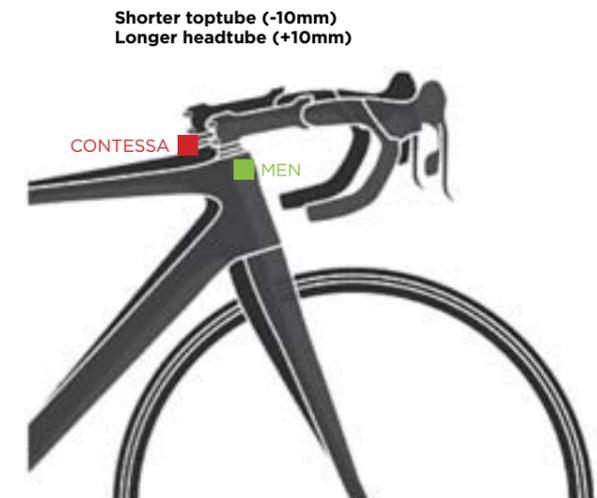
The geometry of the Solace has been adapted to match the requirements of the endurance rider. A headtube that is 2.5cm longer compared to that of the Addict allows the rider to sit in a slightly more upright position on the bike and to avoid

discomfort in the lower back and neck regions. With these ergonomic adaptations and the comfort properties of the Solace, long days on the saddle become even more enjoyable



### WOMEN'S SPECIFIC GEOMETRY

SCOTT aims high when it comes to the comfort and ergonomics of the Solace. Therefore a women's specific geometry for the Solace Contessa lineup has been developed. A 10mm shorter toptube combined with a 10mm longer headtube take into account the different proportions of women and offer a perfect fit for female road cyclists.



## SIZE SPECIFIC CARBON LAY-UP AND TUBE CROSS SECTIONS

Bigger frame sizes consist of longer tubes which are less rigid due to their increased length. At the same time, taller riders usually produce more power and consequently need a stiffer frame. To make sure riders with different heights and therefore different abilities to produce power are fitted on frames that match their characteristics, the tubes' cross sections as well as the Carbon lay-up of the Solace have been adapted for each

size. Larger sizes feature a stiffer lay-up for the downtube for optimal power transfer while smaller sizes have a softer layup for the seattube to make sure lighter riders experience the same vertical compliance and comfort. With the same goal in mind, the engineers developed two versions of the fork which feature a different Carbon lay-up and therefore different stiffness and compliance characteristics.



## OVERSIZED BOTTOM BRACKET

The BB86 press fit bottom bracket is wider than previous BB Standards, offers increased stiffness and maximizes power transfer by virtue of wider attachment points for the downtube and the seattube



## TAPERED SEATTUBE

The junction between BB and seattube has been enlarged to ensure a high lateral stiffness and to maximize power transfer.



## TAPERED HEADTUBE

The tapered 1 1/8" to 1 1/4" headtube ensures high torsional stiffness and handling that is confidence inspiring.



## SDS - SHOCK DAMPING SYSTEM

SCOTT's proprietary Shock Damping System (SDS) has been developed to increase the comfort of the frame and fork through deformation. The tube shape design, the choice of Carbon fiber types and the sophisticated orientation of these during the manufacturing process are done with the ultimate goal in mind of improving shock dampening and vibration absorption abilities of the frame without compromising power transfer.



## ASYMMETRIC DESIGN

The Solace can be defined as the ultimate balance between power transfer and comfort. To match the concept of balance, the rear stays have been designed asymmetrically - the transmission which is located on the right side of the bike results in an asymmetrical stress distribution on the rear stays. Instead of reinforcing the right side of the rear stays, which is subject to high loads, the tube cross sections are optimized to match the zone-specific requirements.



### INTERNAL CABLE ROUTING FOR ELECTRONIC AND MECHANICAL TRANSMISSIONS

Two different cable guide sets make the Solace frame compatible with both electronic and mechanic groupsets. In addition, the Solace frame offers internal cable routing providing a clean look.



### INTEGRATED CHAIN CATCHER

The Solace is equipped with an integrated chain catcher for hassle-free hours in the saddle even on the roughest roads.



### ERGONOMIC PARTS

The Solace is spec'd with Syncros components dedicated to comfort. The seatpost comes with an adapted Carbon lay-up that offers 15% more vertical compliance compared to standard seatpost lay-ups. The Syncros RR saddle is wider in the area of the sitting bones to ensure increased contact surface and to support a more upright body position on the bike. It also features extra cushioning leading to a more comfortable ride. The Syncros handlebar has a backsweep, offering a shorter reach and therefore a more comfortable riding position.



**+42%**  
COMFORT COMPARED TO CR1

**890G**  
FRAME HMX SIZE 54 (950G HMF SIZE 54)

**330G**  
FORK HMX (380G HMF)

**+17%**  
BB STIFFNESS COMPARED TO CR1

**12 | FRAMES**  
SIZE SPECIFIC GEOMETRY / DESIGN / LAYUP

# SOLACE DISC

### THRU AXLE STANDARD

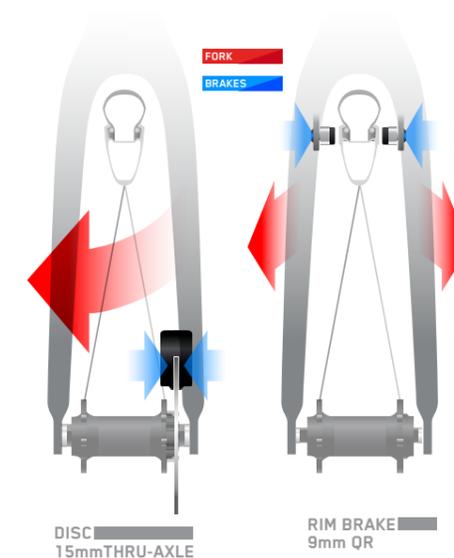
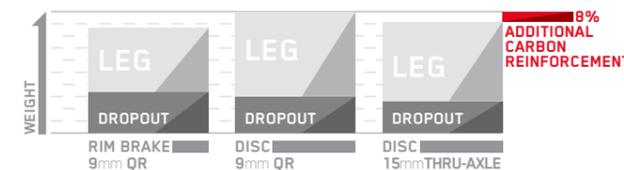
During the past few years, thru axles have become the new standard on mountain bikes, replacing standard quick release systems. The thru axle system is designed to be as quick and easy to use as a regular quick release, while at the same time offering extra strength, stiffness and security. Thru axles provide

increased axle-stiffness compared to standard quick releases. That being said, they improve the stiffness of the fork/wheel and rear triangle/wheel systems, ultimately working in favor of power transfer.

### IDENTICAL COMFORT- EXTRA BREAKING POWER

Caliper brakes are mounted at the base of the fork where braking forces are applied more symmetrically and in a stable area. Disc brakes, on the other hand, are mounted on the lower part of the left fork blade, forces therefore applying unilaterally. Since the fork blades are key to absorbing shocks arising from the ground, they are not the most rigid section of the fork. To make sure the absorption of the braking forces is sufficient the fork needs to be reinforced. Reinforcing the fork with additional Carbon layers, results in a heavier fork. At the same time, vertical compliance and comfort might be affected negatively due to the increased stiffness. A thru axle offers better preconditions to absorb the increased braking power of disc brakes compared to standard quick releases due to its high stiffness. As a result, the fork does not require the same

degree of reinforcement when a thru axle is used instead of a standard quick release. The disc brake version of the Solace offers unchanged comfort, an extra bit of braking power and a lower weight compared to a quick release solution.



### EASE OF USE

Installing wheels with disc brakes and standard quick release systems in such a fashion that the disc is not rubbing on the brake pads can be difficult. Wheels with thru axle closing mechanism offer unparalleled precision when it comes to positioning the disc brake within the brake system making for much ease of use.

### INTERNAL CABLE ROUTING

Clean internal cable routing for both mechanical and electronic groupsets and hydraulic brake cables.