Lotus Seven Club
for Caterham and Lotus Seven enthusiasts

AVON TYRES

2021 Edition

INTRO

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INTRO

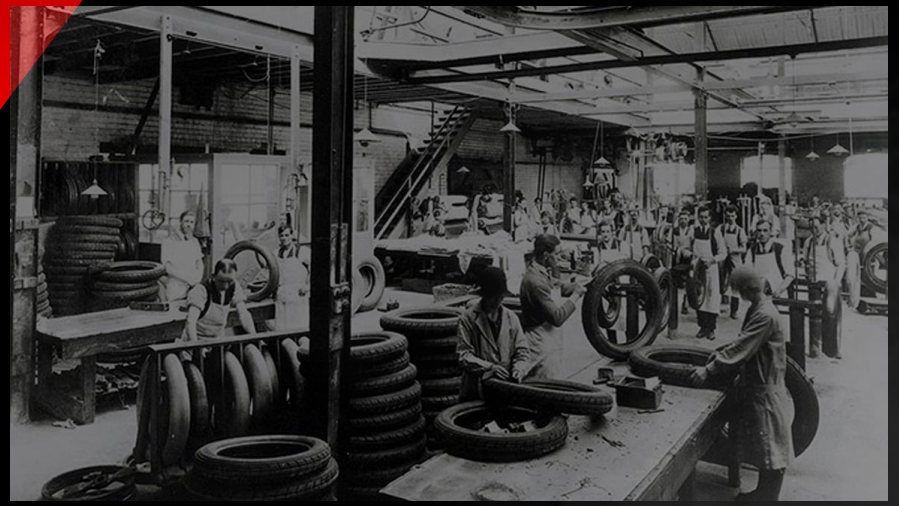
ABOUT AVON TYRES

HIGH QUALITY TYRES SINCE 1904

More than a century of experience, combined with the very latest design and manufacturing technology, goes into every tyre manufactured for cars, motorcycles and vans under the Avon brand. Avon has not only proven itself on the road, but also on the racetracks of the world.

Racing is in our DNA. We live it, breathe it and thrive off it. Drivers of all abilities and in hundreds of applications across the world rely on Avon Tyres to deliver performance.

Avon Tyres is a brand owned and operated by Cooper Tire & Rubber Company.



AVON TYRES

RANGE

RANGE

RANGE

RANGE

INTRODUCING THE AVON TYRES MOTORSPORT PRODUCT LINE UP

DESIGNED FOR USE ON TRACK AND ON ROAD

The following product ranges are designed by the Avon Tyres Motorsport team and are proudly manufactured within our UK motorsport production facility. Each product has been developed in conjunction with Caterham Cars.

AVON® ZZS

AVON® ZZR

AVON® CATERHAM ACADEMY

AVON TYRES

AIR
AIR
AIR
AIR
AIR

COMPRESSED AIR

USING DRY AIR WITH A NEGATIVE CELSIUS DEW POINT OR MINIMISING THE WATER IN YOUR COMPRESSOR SETUP WILL REDUCE THE VOLATILITY AND INCREASE REPEATABILITY OF YOUR TYRE PRESSURES.

Not all air is the same.

Water vapour is a byproduct of compressing air. As a tyre gains temperature water vapour in the tyre will condense. The volume of water increases at a higher rate to the change in temperature than air does; therefore, it will increase the pressure more than dry air would alone.

As a result, if water vapour is not separated correctly from compressed air this can result in uncontrolled amounts in the tyre which can negatively affect the repeatability and volatility of your tyre pressures.

Using air that has been dried will reduce volatility and increase repeatability. With the above information in mind we would advise where possible to use dry air with a negative Celsius dew point.

Alternatively drain your compressors often including any water traps you might have and purge air lines when possible to remove as much accumulated water as possible.

AVON TYRES

PRESSURE
PRESSURE
PRESSURE
PRESSURE
PRESSURE

TYRE PRESSURES

CHANGING TYRE PRESSURE CHANGES THE EFFECTIVE SPRING RATE OF THE TYRE AND ITS INTERACTION WITH THE SPRUNG MASS.

Pneumatic tyres act as a spring on a vehicle. A spring is defined by its deflection against load which will give you a spring rate. Increasing the tyre pressure will increase the spring rate of the tyre. Vice versa, decreasing the tyre pressure will reduce the spring rate of the tyre.

This is important to remember as it shows a change in pressure will change the interaction with the sprung mass.

If the car has…

…excessive movement under braking	▶ Increase Front Pressure
…car responds slowly to any inputs or feels heavy	▶ Increase Pressure
…rolling off the edge of the tyre	▶ Increase Pressure

If the car has…

…excessive sliding	▶ Reduce Pressure (On Sliding Axle)
…car feels overly sensitive to any inputs or feels light	▶ Reduce Pressure
…excessive tyre temperature	▶ Reduce Pressure

Pressure increases or decreases should be in small increments such as **2psi**. It is not uncommon to run differing pressures on either axle of the vehicle. In torrential rain conditions higher pressures may help to keep the pattern open. Please understand all of these are generic solutions and should only be used as guidance.

When using your vehicle on circuit tyres pressures should always be set when **HOT**, from this cold tyre pressures can be determined once the tyre has cooled.

Do not run tyres underinflated in any circumstances.

AVON TYRES

TEMPS
TEMPS
TEMPS
TEMPS
TEMPS

TYRE TEMPERATURES

TYRE TEMPERATURES SHOULD BE MEASURED USING NEEDLE PYROMETERS FOR ACCURACY AND REPEATABILITY RATHER THAN USING INFRARED.

When referring to tyre temperature we work with a measurement taken at the base of the tread. This shows the bulk of rubber temperature rather than surface temperature. This is a more repeatable measurement and representative of the temperature you are achieving whilst on track.

Avon Tyres Motorsport recommend taking this temperature with a needle pyrometer. This should be done carefully so as not to puncture the tyre but close enough to the carcass to get a stable reading.

Normally three readings would be taken across each tyre: inside, centre and outside. Inside and outside measurements should be taken 25mm (1 inch) away from edge of the tread. This information should help you to alter suspension geometry to optimise tyre performance. The outside edge of the tyre should be between 5°C to 15°C lower than the inside edge of the tyre. The centre of the tyre should be between 0°C to 8°C lower than the inside edge of the tyre.

Most Avon circuit or trackday tyres will generate good levels of grip between 60°C and 90°C. The highest temperature of a tyre should generally not exceed 110°C, excessive heat could damage the tyre.

AVON TYRES

ADVICE
ADVICE
ADVICE
ADVICE

SCRUBBING IN

FOR MOST PURPOSES, RACING TYRES WILL BENEFIT FROM AN APPROPRIATE “SCRUBBING IN” PROCEDURE. THIS PROVIDES THE BEST COMBINATION OF PERFORMANCE AND LONGEVITY UNDER RACE CONDITIONS.

There are several difficulties that arise when using racing tyres if they are not scrubbed in prior to use. The most common is “Cold Graining”, where the layer of the tread compound in contact with the track, fails in shear with the layer below. The result is a visible low frequency, high amplitude rippling effect. This is more common with new tyres particularly when used in wet conditions.

Avon Tyres Motorsport recommends that a standard scrubbing in procedure be used whenever possible (conditions and regulations allowing). This consists of subjecting the tyres through one gentle heat cycle, gradually increasing the load. This should take about three to four laps of a circuit where the lap time is in the region of 60 to 100 seconds. The last lap should only be about 80% race speed.

Avon Tyres Motorsport would also always recommend preparing a set of
Wet tyres with a light scrubbing in procedure. 2 laps at 50% speed will suffice. We would not recommend scrubbing wet tyres on a dry track, excessive heat could damage the tyre.

AVON TYRES

ADVICE

ADVICE

ADVICE

ADVICE

SCRUBBING IN

IT SHOULD BE NOTED THAT THERE IS ALWAYS GOING TO BE A SLIGHT PERFORMANCE PEAK FROM NEW TYRES, BUT IT WILL ONLY BE POSSIBLE TO TAKE ADVANTAGE OF THIS IF THE CAR IS BALANCED ON ITS TYRES. A CORRECTLY SCRUBBED IN SET OF TYRES WILL ALWAYS GIVE MORE CONSISTENT PERFORMANCE

When regulations or circumstances do not allow the described scrubbing in procedure to be carried out, then the following should be considered:-

- Graining of the loaded front tyre can be avoided if it is ensured that they are fully up to temperature before pushing hard. It is relatively easy to generate temperature in the drive tyres as they are transmitting power most of the time. The front tyres, however will need to be given more time and be loaded up progressively before they will be “In” fully. It should be noted that it is the loading of tyres that introduces significant heat, not sliding or wheel spinning.

- For qualifying, the best results will be achieved when the front and rear tyre temperatures are the same when measured at the base of the tread. If pushed too early, the rear will come in before the front causing understeer, and taken to the extreme, cold graining.

PLEASE FEEL FREE TO DISCUSS ANY OF THESE POINTS WITH OUR TECHNICAL TEAM

AVON TYRES

ON ROAD

ON ROAD

ON ROAD

ON ROAD

AVON® ZZS

MANUFACTURED AND DESIGNED IN THE UK
Within our Motorsport manufacturing facility

DIRECTIONAL ALL-WEATHER PATTERN
Maximise water clearance and optimise all-weather performance

RACING DERIVED TREAD COMPOUND
Outstanding levels of grip in wet and dry conditions

FULL COMPETITION CONSTRUCTION
Optimum on road and on track performance

For road use on Lotus Seven and Caterham type vehicles Avon Tyres Motorsport recommend pressures between 18psi and 21psi on the following Avon ZZS sizes.

13”	15”
185/55R13	195/50R15
215/55R13	245/40R15
245/50R13	

AVON® TYRES

ON TRACK

ON TRACK

ON TRACK

ON TRACK

AVON® ZZS

MANUFACTURED AND DESIGNED IN THE UK
Within our Motorsport manufacturing facility

DIRECTIONAL ALL-WEATHER PATTERN
Maximise water clearance and optimise all-weather performance

RACING DERIVED TREAD COMPOUND
Outstanding levels of grip in wet and dry conditions

FULL COMPETITION CONSTRUCTION
Optimum on road and on track performance

Using your Avon ZZS's on trackdays in a Lotus Seven and Caterham requires a different pressure than you would use on the road.

Avon Tyres Motorsport recommends between 22psi and 27psi **HOT** on 13" ZZS tyres.

Avon Tyres Motorsport recommends between 21psi and 24psi **HOT** on 15" ZZS tyres.

AVON® TYRES

ON TRACK

ON TRACK
ON TRACK
ON TRACK

AVON® ZZR

MANUFACTURED AND DESIGNED IN THE UK
Within our Motorsport manufacturing facility

DRY WEATHER ORIENTATED TREADPATTERN
Extreme stability

FULL RACING TREAD COMPOUND
Outstanding levels of grip

FULL COMPETITION CONSTRUCTION
Optimum on track performance

The Avon ZZR provides a fantastic level of performance when using your Lotus Seven or Caterham on track.

Avon Tyres Motorsport recommends between 22psi and 27psi **HOT** on 13” ZZR tyres.

Avon Tyres Motorsport recommends between 21psi and 24psi **HOT** on 15” ZZR tyres.

AVON® TYRES

CATERHAM MOTORSPORT

CATERHAM ACADEMY

Designed specifically to compliment the chassis and performance characteristics of the Caterham Academy car and championship.

Avon Tyres Motorsport recommends between 32psi and 36psi **HOT** on Avon Caterham Academy Tyres.

CATERHAM ROADSPORTS, 270R AND 310R

Using the Avon ZZS as a control tyre for all three championships to provide outstanding levels of grip in wet and dry conditions

Avon Tyres Motorsport recommends between 22psi and 27psi **HOT** on ZZS Tyres for Roadsports, 270R and 310R Championships.

CATERHAM SEVEN CHAMPIONSHIP UK

Avon Tyres Motorsport and Caterham can provide assistance with setup recommendations for the 2021 slick and wet tyres used in this championship.

AVON TYRES

LIST 1C

LIST 1C

LIST 1C

LIST 1C

DESIGNED EXCLUSIVELY FOR COMPETITION, THE EXTREME AND RT7 ARE EVOLUTIONS OF THE FULLY ROAD LEGAL ZZR AND ZZS. DESIGNED WITH UNCOMPROMISED PERFORMANCE FOR OPEN COMPETITION.

AVON® ZZR EXTREME

AN EXTREME INCREASE IN PERFORMANCE

New ZZR Extreme with increased performance for open competition areas that allow Motorsport UK List 1C tyres.

Available in 185/55R13, 215/55R13 and 245/50R13.

Avon Tyres Motorsport recommends between 21psi and 24psi **HOT** on 13” ZZR Extreme tyres.

AVON® ZZS RT7

OUSTANDING LEVELS OF GRIP IN WET CONDITIONS

Designed for open competition that allow Motorsport UK List 1C tyres for uncompromised wet weather performance.

Available in 185/55R13, 215/55R13 and 245/50R13.

Avon Tyres Motorsport recommends between 20psi and 24psi **HOT** on 13” ZZS RT7 tyres.

NOT SUITABLE FOR USE ON THE ROAD

AVON® TYRES

PRODUCTS

PRODUCTS

PRODUCTS

PRODUCTS

Image by www.snappyracers.com

BESPOKE PRODUCTS

Whether you are sprinting, hillclimbing or rallying your Lotus Seven or Caterham we might just have a bespoke product all ready for you.

Avon Tyres Motorsport has a large range of slicks, cut and moulded pattern tyres in both crossply and radial construction suitable to get your vehicle from A to B as fast as possible.

PLEASE FEEL FREE TO DISCUSS YOUR REQUIREMENTS WITH OUR SALES TEAM WHO WILL BE ABLE TO HELP.

AVON TYRES

CONTACT

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