

Which Forces Help to Make a Scuderia Ferrari Car Move **Fast?**



What Are Forces?

Forces are pushes and pulls.

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Some forces include...

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friction

•

gravity

•

air resistance

buoyancy

magnetism

Did You Know...?

Forces are measured in newtons, using a force meter. The word 'newton' comes from Sir Isaac Newton, who developed the law of motion.



Formula One Cars

Formula One races involve single-seater vehicles, such as those made by Scuderia Ferrari, that are designed to be some of the fastest in the world.



To achieve this, the designers and engineers need to find ways to use forces to their advantage to make their cars go as fast as they can.

Let's look carefully at the different forces that act on a Formula One car.

What Is Friction?

Friction occurs when two solid surfaces rub against each other. It can be defined as the force that opposes motion. This means that it is a force that stops or tries to slow down moving objects.



To make an object move, you must apply force to it. This motion force needs to overcome friction, otherwise the object cannot move.

How Do Scuderia Ferrari Cars Use Friction?

Tyres



A Scuderia Ferrari car's specialist engine gives the car its fast, forward motion. However, the tyres of a Formula One car are specially designed so that they can use just the right amount of friction to make the car go as fast as it can, safely.

How Do Scuderia Ferrari Cars Use Friction?

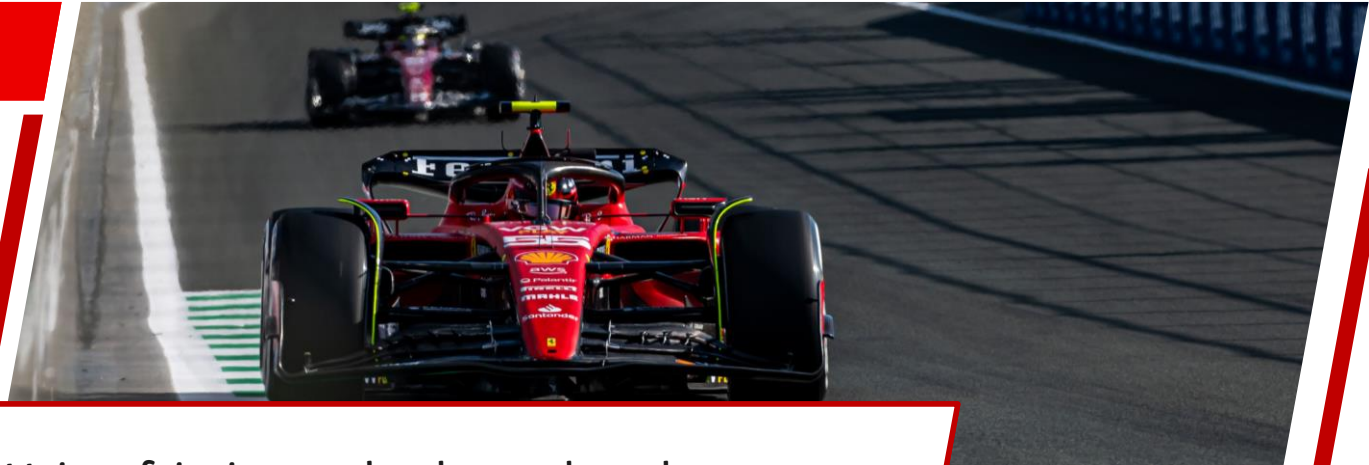
Did You Know...?



There are five different types of Formula One tyre: these range from C1 (least grip) to C5 (most grip). Teams are told which tyres to use, based on the track conditions on the day of a race.

How Do Scuderia Ferrari Cars Use Friction?

Brakes



Using friction to brake makes the car more efficient and likely to go faster. This is because the braking for corners and pit stops are essential to the car manoeuvring the track and staying in peak mechanical performance, which aids its speed.

when
can to
brakes
before
op.

What Is Air Resistance?

Air resistance is a type of friction. It occurs when air particles hit an object and create air resistance. The faster an object moves, the more air resistance it encounters.



The shape of an object affects its air resistance. Streamlined objects are shaped to allow the air to move around them more easily.

How Do Scuderia Ferrari Cars Use Air Resistance?

The shape of a Scuderia Ferrari car, like all Formula One cars, is designed to allow for the least amount of air resistance (or 'drag'). This is called an 'aerodynamic' design. An aerodynamic design makes a car travel fast; however, too much speed can cause a car to lift from the ground. So, to remain stable on the road, it is important that the car is designed to allow for the right amount of downforce: the force that presses the car to the ground.



How Do Scuderia Ferrari Cars Use Air Resistance?

The downforce on a Formula One car is achieved by the two wings on the front and the back of the car.

These wings push the air around the car in a way that reduces the drag but also creates downforce to give the car a good grip on the road.



The Power of Design

Scuderia Ferrari

most

Did You Know...?

engine in a Scuderia

the combination of lots

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The first Scuderia Ferrari car was built in 1950. Engineers and designers are constantly looking at ways to improve the performance of Formula One cars. The current Scuderia Ferrari F1-75 can reach around the racetrack at approximately 220mph!



