



6DOF EVOLVE MOTION SIMULATOR







Simracing is getting more popular each year. Enthusiasts compete in hundreds of e-sports events, professional drivers improve their skills & learn tracks, while factory teams are using simulators to test setting and develop production cars in a safe and cost-effective environment. Even F1 teams use simulators to gather data, their cars and the tracks are modelled in incredible detail as simulation is a big part of their development.

We decided to develop Evolve Motion Simulator to offer factory simulator quality to a wider market and provide professional drivers the right tool to develop their skills and support training programs.





WHAT IS ALL ABOUT? EVOLVE MOTION SIMULATOR

The Evolve Motion Simulator is 6DOF motion platform, which goes along with your favourite PC compatible racing sim. Assetto Corsa, RFactor 2 or iRacing are most popular titles.

The Evolve Motion Simulator provides additional immersion and simulates forces, which affect a driver during a race. Industry leading level of realism is the combination of cutting edge electric actuators and the Evolve's software, which converts telemetry data to six types of platform's movements – sway, surge, heave, roll, pitch, yaw.



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WHAT DOES 6DOF MEAN? SIX DEGREES OF FREEDOM

Six degrees of freedom (6DOF) refers to a certain number of axis that a rigid body can move freely in 3D space.

In our case, it defines the number of independent attributes that determine a position and movement of a car. 6DOF consists of the following movements:



Roll

rotary movement, tilting left-right -
necessary to create a simulation
of the actual physical position of the car,
eg mapping unevenness of the surface



Pitch

rotary motion, tilt forward-back -
necessary to create a simulation
of the actual physical position of the car,
eg. uphill ride / downhill ride



Yaw

horizontal rotation left-right -
necessary to create a simulation
of the actual physical position of the car,
eg during slip / loss of adhesion
of the rear axle



Surge

front-to-back horizontal motion -
necessary to generate braking
and acceleration simulations



Sway

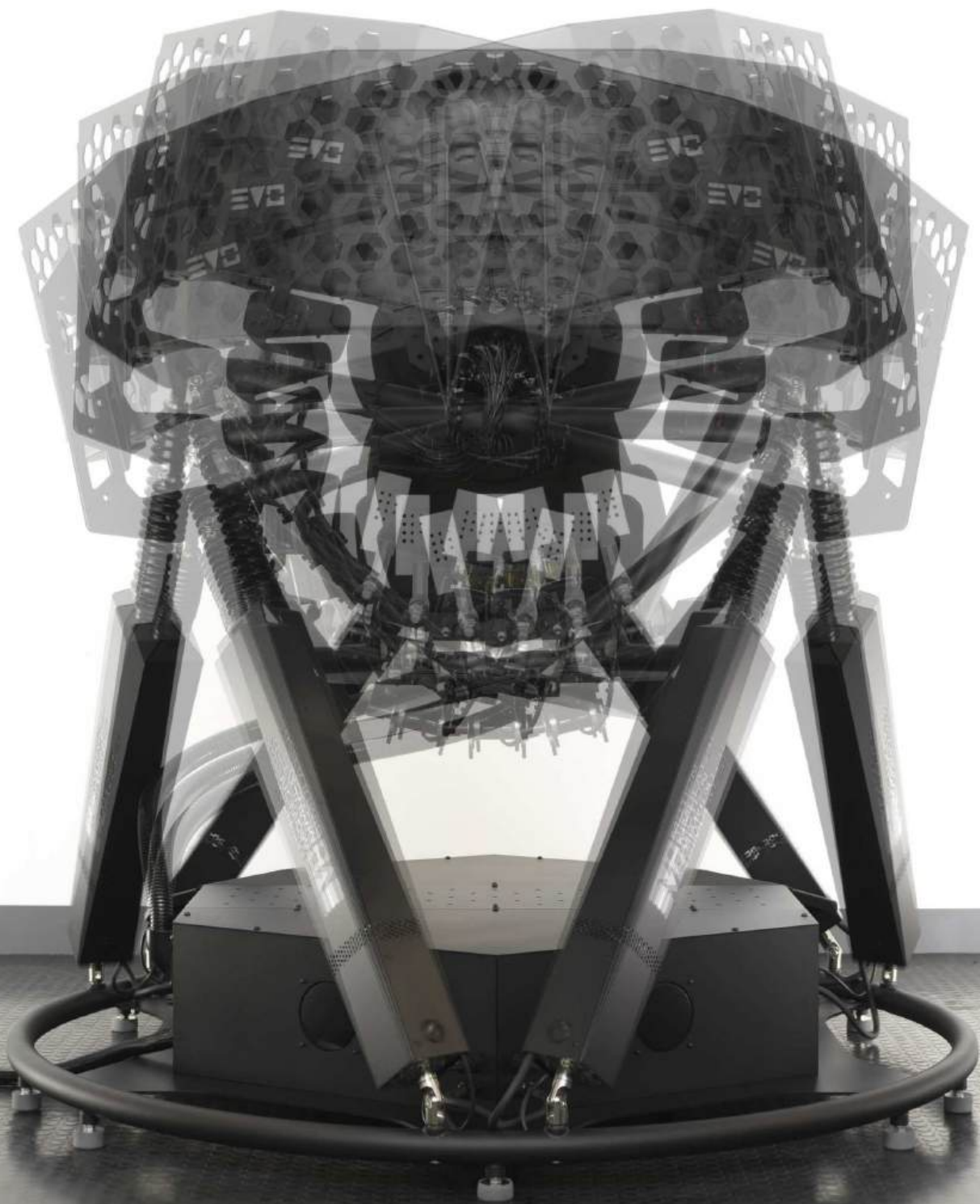
left-right horizontal motion -
necessary to create a simulation
of overloads, eg during cornering

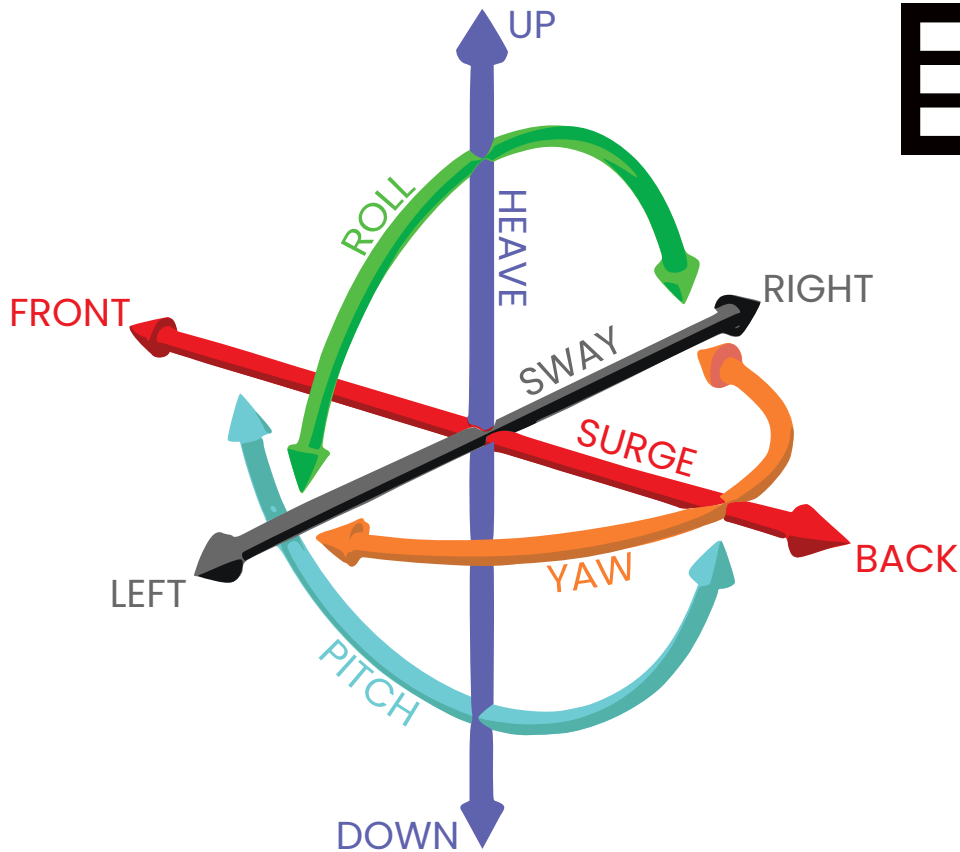


Heave

up-down vertical movement -
necessary to create a simulation
of overloads eg work of
shock absorbers /
unevenness of the surface /
jumps

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The combination of all the above mentioned movements is able to create a real, full-fledged simulation, moreover, the lack of any of these forces prevents the creation of simulations, therefore, for example all teams of Formula 1 use simulators with similar design to our simulator, based on 6 actuators.

Using 6 actuators, arranged symmetrically at appropriate distances and at the right angle, our simulator moves in six degrees of freedom (6DOF). Only this arrangement of actuators and this type of their arrangement is able to create movement in any direction in three-dimensional space, which is synonymous with the possibility of generating any sensations that are encountered in reality while driving a car.

Due to the lack of market availability of actuators that would meet our requirements, we designed and manufactured actuators with parameters that allow perfect mapping of all movements that create simulations. Actuators are electric, their speed is up 500mm/s and stroke is 350mm.



HOW REALISTIC IS OUR SIMULATOR?

Proper gear is as important as motion.

We use direct drive wheel bases to get the feeling of understeer, oversteer, kerbs & changes in surface because when you're driving a real car, you're receiving constant feedback about the car's behaviour through the steering wheel.

In-house developed pedals with hydraulic master cylinders designed to provide the maximum level of realism close to real racing.

Just choose your favorite steering wheel and you are ready to go.



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WHAT IS INCLUDED ?

- 6 DOF motion platform
- Direct Drive steering wheel base (Simucube 2 Sport)
- H-Pattern and sequential modes gear shifter (Fanatec)
- race seat
- Heusinkveld pedals system
- Heusinkveld handbrake
- surround sound system (Logitech)
- steering wheel with button box and paddle shift system
- 3 x 32" 165Hz monitors



DOES SIMRACING MAKE YOU A BETTER DRIVER?



"It keeps me ready to go, because I'm spending a lot of time also then on the setup" Verstappen said in an interview with personal sponsor CarNext.

"I'm not racing a Formula 1 car on the simulator, but it's like GT cars, so it's also a different technique of driving"

"I just keep testing myself, and especially these sim drivers... they're so quick!"

"It's very interesting to see them drive because they have no real experience of a car but, somehow, when you look at how they're braking, how they're controlling, it is how it should be"

"It's very interesting for me to then compare myself to them, because they're naturally quick on the sim, I'm naturally quick in real life. For me, that's another motivation, because I know that I'm confident that when I want to jump in a real car, I'll be quick"

"But on the simulator, these guys are the benchmark and I have to push myself to that limit. I like to test myself and improve myself to also learn from them so [in] my downtime, I'm still trying to improve myself, which I think also helps me in real life"





TECHNICAL SPECIFICATION

Excursion	
Surge	430 mm
Sway	370 mm
Heave	250 mm
Roll	-14° (28.00°) +14°
Pitch	-15° (30.00°) +15°
Yaw	-18° (36.00°) +18°

Requirements:

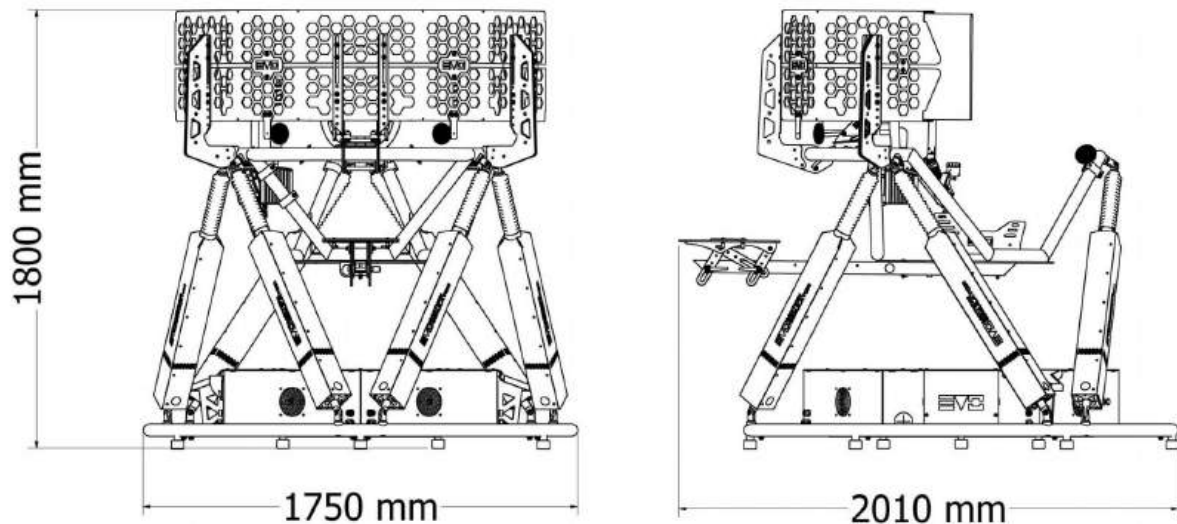
Power supply is standard 16A 230V "home" socket. Our simulator does not require any special industrial / commercial power supply.

The connection cables coming from the right side of the simulator are 350 cm long

An internet connection is required to race online. No internet connection is required to use the simulator offline.

To obtain technical support, an internet connection and Remote Desktop is required for our technician.

Dimensions:



weight ~340kg (two big size batteries, used as a voltage stabilizer weights ~80kg, for example BOSCH 0092T50770)

Recommended minimum space:
300cm x 300cm x 250cm (width x length x height)

Warranty:

All elements of the simulator are covered by a 12-month or 1500 hours of work warranty period, whichever comes first. Hour counter is built into our software.



WATCH A VIDEO:

1



2



3





 **EMOTION
SIMULATOR**