

the wing. Airflow leakage under the wing endplates prevents that stalled region from extending across the full span of the wing.

It is hard to prevent stall in the diffuser of a flat bottom ground effect car because the rate of pressure recovery is necessarily quite rapid due to the extremely short diffuser length. All of the Formula 1 teams tailor the diffuser shape so that it stalls at a low rear ride height, which is only seen on the long straights. The stalled diffuser produces less downforce, and therefore less drag, than an attached diffuser would.

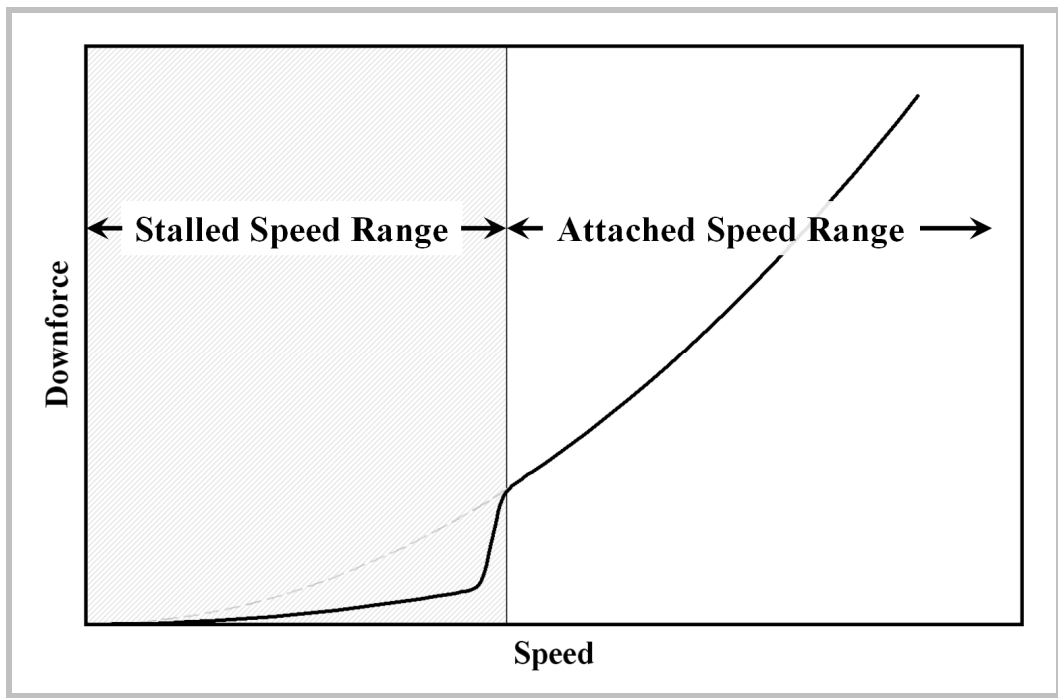


Figure 53 All wings and ground effect tunnels are stalled when the local airspeed is below the attach speed for that device.

There are a few simple ways to lower the stall speed of a wing:

- Reduce the wing or flap angle of attack and install a Gurney flap.
- Sand the lower surface to trip the aerodynamic boundary layer into turbulent flow closer to the leading edge of the wing.
- If the engine is hard-mounted to the chassis and has less than 8 cylinders, vibration transmitted from the engine to the wings may be enough to trip the boundary layer.

A turbulent boundary layer can stay attached to the surface in a more rapidly decelerating flow field than a laminar boundary layer. A wing produces a