

Four Post Rig Wheel Pan Loadcell

Customer:

UK based Formula 1 company

Loadcell:

F254-Z3215 +15kN -5kN

Special Features:

Moment insensitive

Low mass



The customer required four loadcells for a vehicle chassis dynamics rig. The specifications supplied were for measurement of dynamic vertical load, F_z of +15kN to -5kN and insensitive to moments M_x and M_y . Lateral resonance of the structure must be greater than 1000Hz, with the live mass of the system kept low to minimise inertial force errors. Maximum diameter for the wheel pan was 340mm.

A generic 'pancake' design with a large outer diameter provided a large contact patch area of 320mm diameter for the racecar tyre to bounce upon. The live mass of the structure was the outer ring providing the largest active footprint with the lowest mass. Tests of moment insensitivity were carried out in house by applying a mass of 38.6kg around a 100mm concentric radius on the loading plate. These tests showed a 0.01% of rated load error due to the offset load.

