

SM/DJ front wing range data

22/12/2014

Forces at 100mph in freestream, Ansys CFD-Flo. NB forces developed on a car will differ from those developed in freestream; this data is intended for comparison between our products only.

This data is indicative of the configuration specified in isolation. It will vary not just with speed but with ground clearance, proximity to the front wheels (in single seater applications), flap span, flap chord, end plate design and a number of other parameters.

Note too that the drag of a single seater is influenced very little by the presence of or adjustments to a front wing, so drag values on front wings are not given.

Single element front wing, 1500mm span

153 + 3mm flat end plate, 100mm ground clearance to leading edge

Wing angle	Df, N
0	320.4
4	547.7
8	662.6
10	666.7
12	666.8

Dual element front wings, 1500mm span

153 at 0deg + 3mm end plate, 120mm flap at full span, 100mm ground clearance

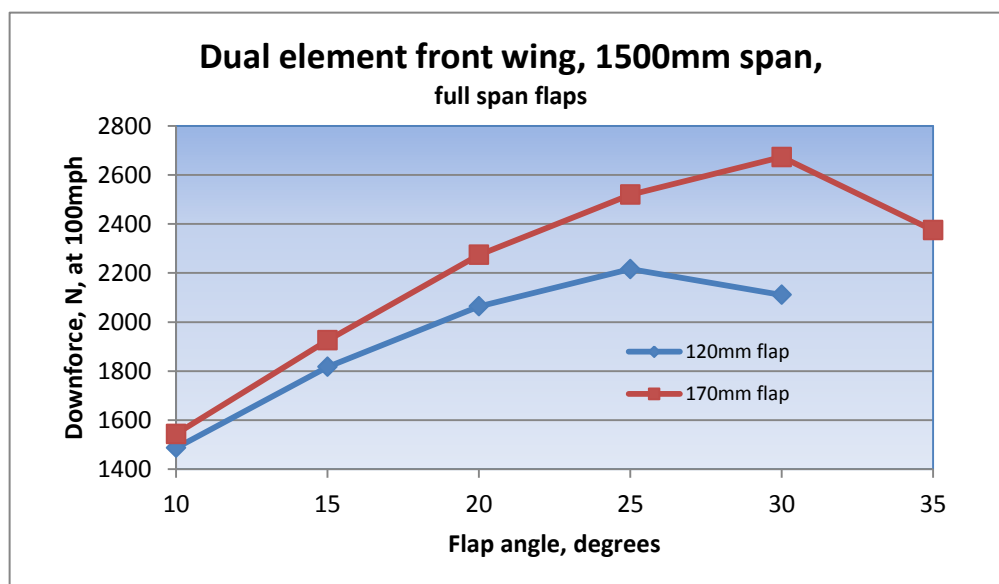
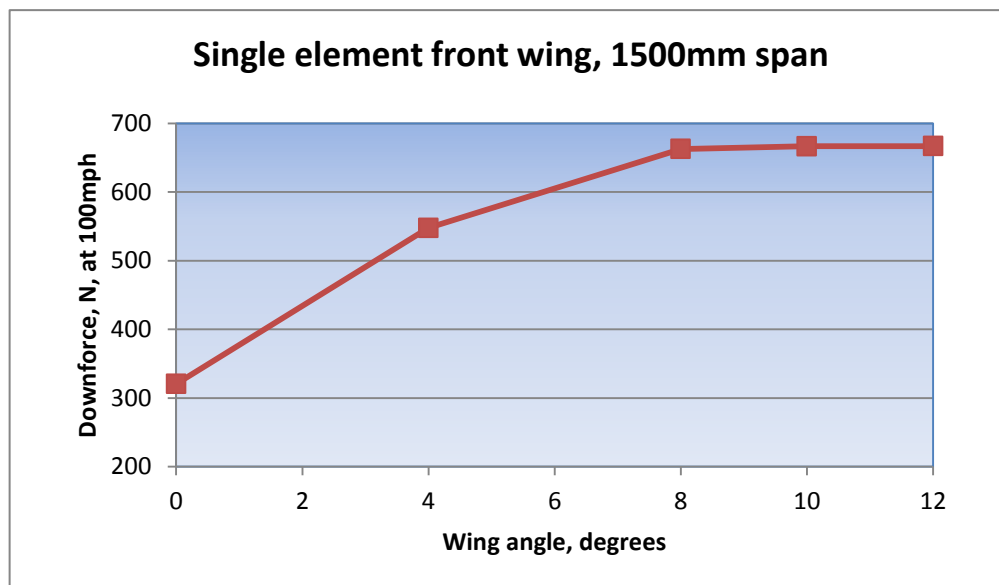
Flap angle	Df, N
10	1486.6
15	1816.9
20	2063.8
25	2215.8
30	2110.6

153 at 0deg + 3mm end plate, 170mm flap at full span, 100mm ground clearance

Flap angle	Df, N
10	1543.4
15	1925.1
20	2273.6
25	2519.2
30	2672.8
35	2374.0

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These plots are just to illustrate the downforce values covered by our single and dual element front wings. Please ask about other options and combinations, or multi-element wings as required.

To calculate approximate forces at other spans, multiply Df by (your span/1700)
e.g. Df at 1500mm is 2215.8N, so at 1400mm it will be $1400/1500 \times 2215.8 = 2068.1\text{N}$

To calculate approximate forces at other speeds, multiply Df or drag by (your speed/100mph)²
e.g. Df at 100mph = 2215.8N, so at 80mph it will be $(80/100)^2 \times 2215.8 = 1418.1\text{N}$

Configuration notes

1. Flaps with variable chord can be manufactured.
2. Triple flap arrangements and 'bridge flaps' are available for high downforce applications.
3. Simple flat or complex 'vortex-entraining' end plates are also available.