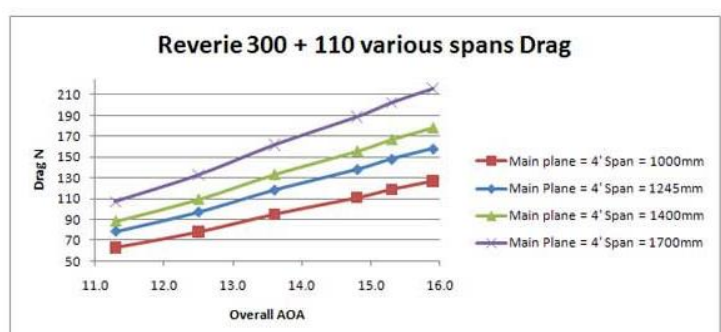
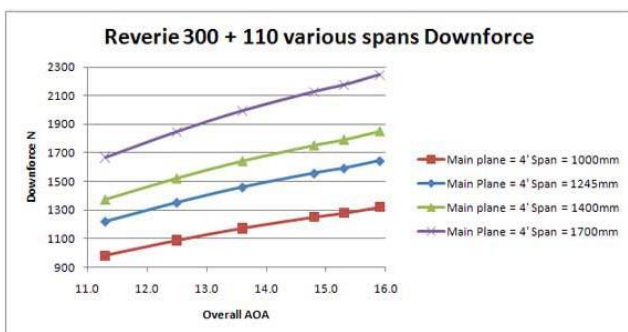


UNIVERSAL DUAL-ELEMENT 310MM + 110MM CHORD CARBON REAR WING

The 1700mm data given was produced by Ansys CFD-Flo software, all other widths have been calculated only using the wing width approximation formula found in our FAQ document. The wing profiles were designed to work together to give a range of down force levels from moderate to reasonably high, depending on the deployed angle of attack and chosen span, with very good efficiency in terms of down force to drag ratio.

*** Data marked in red show that the wing has either stalled or was close to stalling and has been omitted from the graphs ***

1000mm Wingspan						1245mm Wingspan			
AoA Assem	AoA Flap	Downforce (N)	Drag (N)	L/D	BHP Absorbed	Downforce (N)	Drag (N)	L/D	BHP Absorbed
11.3	13.61	981	63	15.6	3.8	1221	78	15.6	4.7
12.5	17.61	1087	78	13.9	4.6	1353	97	13.9	5.8
13.6	21.61	1173	95	12.3	5.7	1460	118	12.3	7.0
14.8	25.61	1251	111	11.3	6.6	1557	138	11.3	8.2
15.3	27.61	1279	119	10.7	7.1	1592	148	10.7	8.8
15.9	29.61	1321	127	10.4	7.6	1645	158	10.4	9.4
1400mm Wingspan						1700mm Wingspan			
11.3	13.61	1373	88	15.6	5.3	1668	107	15.6	4.7
12.5	17.61	1522	109	13.9	6.5	1848	133	13.9	5.8
13.6	21.61	1642	133	12.3	7.9	1994	162	12.3	7.0
14.8	25.61	1751	155	11.3	9.3	2127	189	11.3	8.2
15.3	27.61	1791	167	10.7	9.9	2174	202	10.7	8.8
15.9	29.61	1849	178	10.4	10.6	2246	216	10.4	9.4



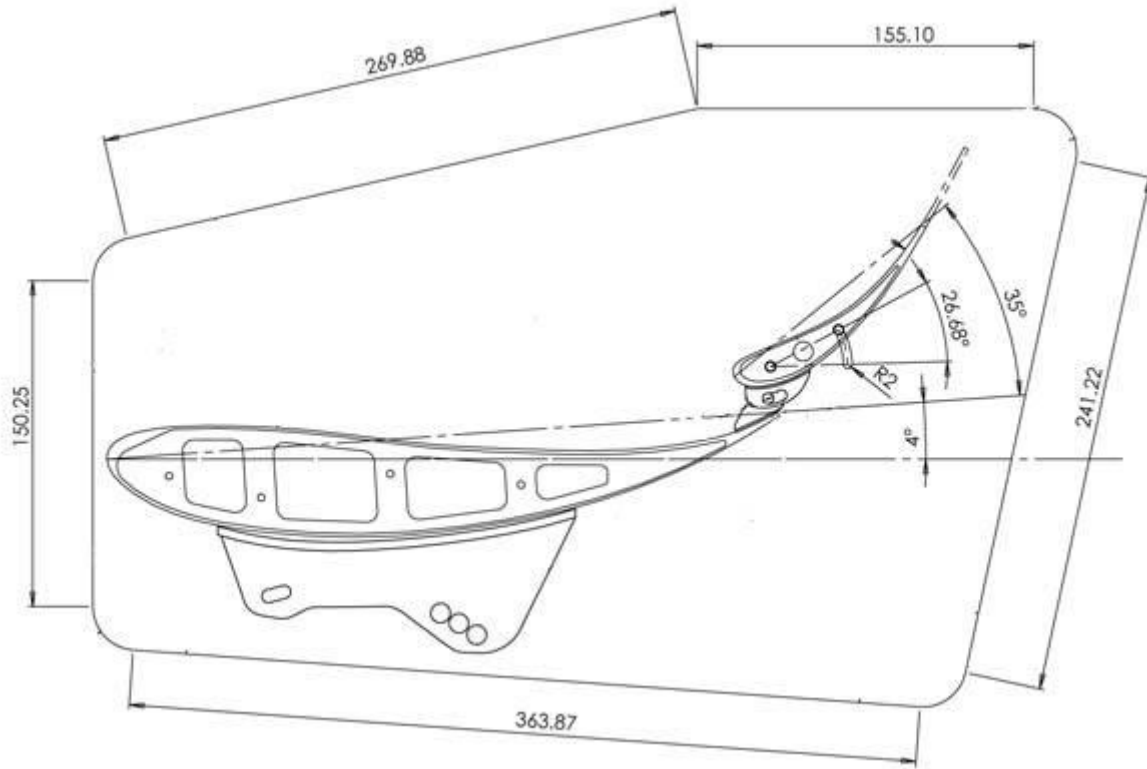
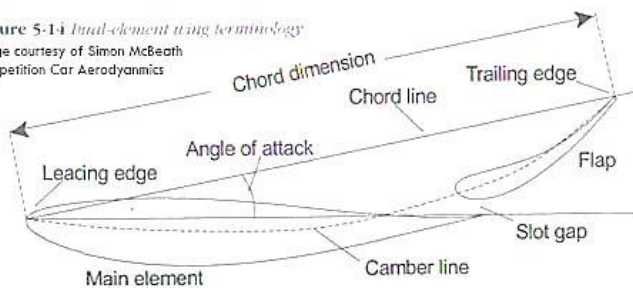


Figure 5-14 Dual-element wing terminology

Image courtesy of Simon McBeath
Competition Car Aerodynamics



310 & 110 Main Plane and Flap angle Optimisation swings

Forces @ 100 MPH

310mm LD Wing with 150mm Flap @ 1000mm Span

15mm Slot Gap, 20mm Overlap @ 0 deg MP

MP @ 0 deg

Flap Angle	Overall AoA	Downforce N	Drag N	L/D
20	10.2	1151	91	12.6
25	11.9	1271	113	11.2
30	13.6	1380	139	9.9
35	15.3	1321	140	9.4
40	16.9	1271	141	9.0

MP @ 4 deg

Flap Angle	Overall AoA	Downforce N	Drag N	L/D
35	17.6	1494	153	9.8

MP @ 8 deg

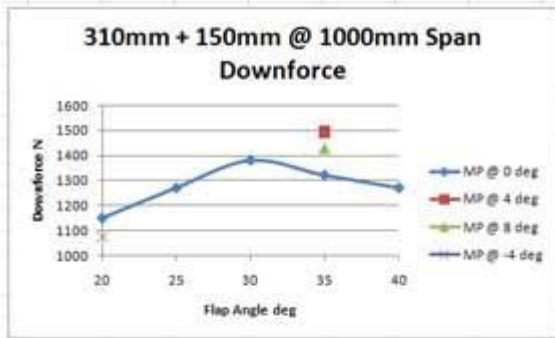
Flap Angle	Overall AoA	Downforce N	Drag N	L/D
35	20.6	1427	151	9.5

MP @ -4 deg

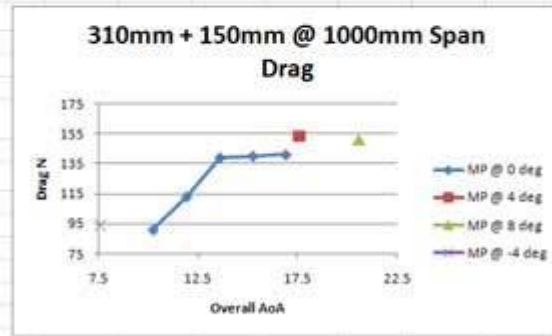
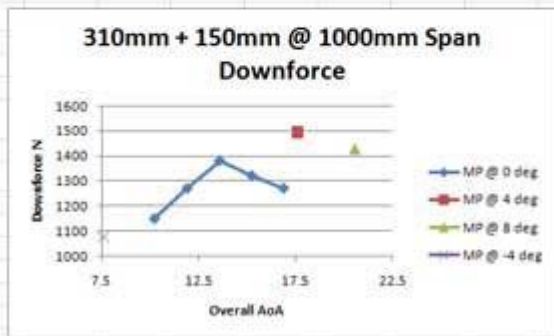
Flap Angle	Overall AoA	Downforce N	Drag N	L/D
20	7.6	1074	94	11.4

Conclusion - The best angles to run the dual element wing for a Downforce vrs Drag trade off are MP @ 0 deg with a Flap angle of 20 deg, overall AoA 10.2 deg. The highest downforce was produced with a MP @ 4 deg, Flap angle of 35 deg and overall AoA of 17.6 deg - Note this is the limit of Overall AoA as @ 8 deg MP Flap of 35 produced Less Downforce than MP @ 4 deg, flap angle of 35 deg Therefore is stalling.

310mm & 110mm Downforce and Drag @ various Flap Angles



Downforce and Drag @ various Overall AoA



Downforce vrs L/D @ various Overall AoA

ORDERING INFORMATION

This autoclaved carbon fibre dual element wing features internal longitudinal stringers and the main plane has alloy end spars with 4x M4 threaded inserts, whilst the flap has alloy end spars with 2 x M5 threaded inserts for mounting between supports or for affixing supplied end plates (which allow flap adjustment). The wing comes supplied with support tabs, rivets and adhesive for post or pillar mounting. Alternatively the end plates can be removed & the wing mounted between wing uprights.

Also specify any special end-mount fixing details when ordering.

You may also like to order the optional 5mm or 10mm high gurney flaps. These can improve the lift / drag performance and reduce the onset of stall at higher angles of attack. These can be bonded on with adhesive or in some cases a high strength double-sided tape with suitable surface preparation. These can be purchased at a later date if required. Replacement end plates are also available separately.