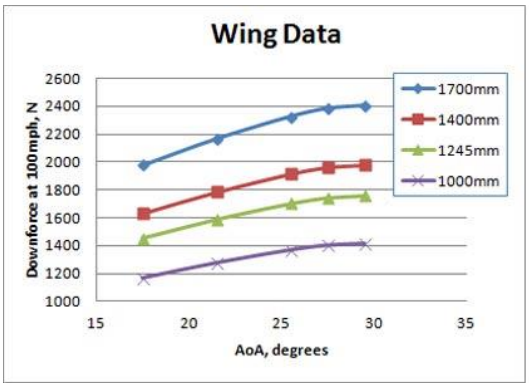
REVERIE

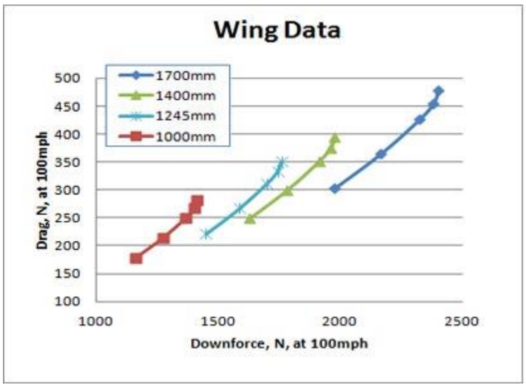
Universal Dual-Element 225mm + 150mm Chord Carbon Rear Wing

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.

*** 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				1250mm Wingspan			
AoA	**Downforce (N)**	**Drag (N)**	**L/D**	**BHP Absorbed**	**Downforce (N)**	**Drag (N)**	**L/D**	**BHP Absorbed**
17.5	1164	178	6.5	10.6	1449	222	6.5	13.2
21.5	1274	214	5.9	12.8	1586	267	5.9	15.9
25.5	1367	251	5.5	14.9	1702	312	5.5	18.6
27.5	1401	267	5.3	15.9	1745	333	5.2	19.8
29.5	1414	281	5.0	16.8	1760	350	5.0	20.9
31.5	1128	275	4.1	16.4	1405	343	4.1	20.5
33.2	1508	325	4.6	19.4	1877	405	4.6	24.1
	1400mm Wingspan				**1700mm Wingspan**			
AoA	**Downforce (N)**	**Drag (N)**	**L/D**	**BHP Absorbed**	**Downforce (N)**	**Drag (N)**	**L/D**	**BHP Absorbed**
17.5	1630	249	6.5	14.9	1979	303	6.5	18.0
21.5	1784	300	5.9	17.9	2166	364	5.9	21.7
25.5	1914	351	5.5	20.9	2324	426	5.5	25.4
27.5	1962	374	5.3	22.3	2382	455	5.2	27.1
29.5	1979	394	5.0	23.5	2403	478	5.0	28.5
31.5	1579	386	4.1	23.0	1918	468	4.1	27.9
33.2	2111	455	4.6	27.1	2563	552	4.6	32.9





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Tuning Advice:

The recommended maximum angle of attack with this wing in free stream air is 20^{O}, although this may be different when mounted on a car.
Forces increase with span width as per tables above. The rise in the forces at speed are in line with the square of the velocity increase. Thus, to calculate forces at different speeds within the range bracketed here simply multiply by the square of the ratio of the speeds in question. Below 100mph some caution should be used when applying this square law, but approximations of forces down to perhaps 60mph or 70mph will be valid.

To Scale a Force to a Different Speed:

We will use the Notched end plate design figure at 100MPH from above. Then scale it to 150MPH.

New Force (N) = Original Force (N) x (New Speed^2 (MPH) ÷ Data Speed^2 (MPH))
New Force = 937.2 x ((150 x 150) ÷ (100 x 100))
New Force = 937.2 x 2.25
New Force = 2108.7

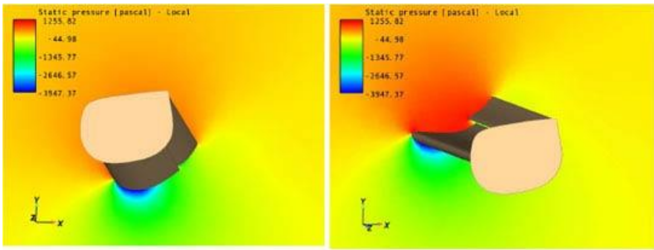
A 5 or 10mm Gurney flap could be added to the rear flap to further add a reasonably efficient increment of down force. All the results obtained were from evaluations in free stream air, with horizontal onset flow to the wing. is obviously not representative of the onset flow on the back of a car. Nevertheless, the generic findings of this project should be valid pressure distribution along the wing centreline Pressure distribution along the wing centreline Velocity vectors, coloured by static pressure, along the wing centreline over upper & lower surfaces of the wing.

SPECIFICATION

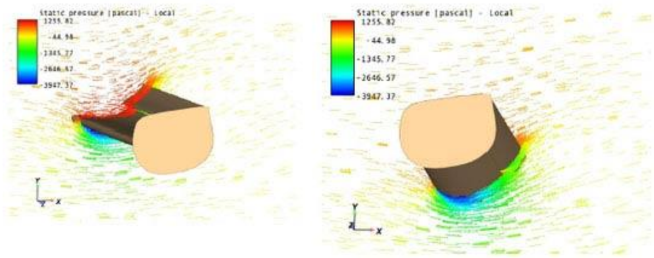
Two universal fit designs are available, either a straight design or a curved design with a 1600mm radius. The wings feature internal longitudinal stringers along the length and end spars with 2 x M6 and 2x M5 threaded inserts for mounting between supports or for affixing end plates.
On single element 225mm & 150 mm wings the end plate 'notch' was incorporated to increase the wing's efficiency by beneficially modifying the airflow around the wing tips'. The wings come ready to mount between supports on the end spars or can be supplied with underside double or single shear carbon fibre mounting plates.

ORDERING INFORMATION

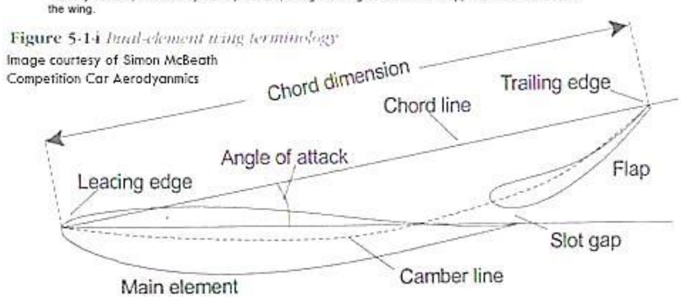
Specify straight or curved profile and required span width when ordering. The wing comes supplied with support tabs, rivets and adhesive for post or pillar mounting. Alternatively the end plates can be removed & the wing mounted between wing uprights. Also specify any special end-mount fixing details 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.



Pressure distribution along the wing centreline   Pressure distribution along the wing centreline



Velocity vectors, coloured by static pressure, along the wing centreline over upper & lower surfaces of the wing.



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