SM/DJ rear wing range data

May-26

Forces (and Drag BHP) at 100mph in freestream. NB, forces developed on a car will differ from those developed in freestream; this data is intended for comparisons between our products only.

Single element wings See page 2 for calculations for other spans and speeds, and configuration notes. Ansys CFD, KE turbulence model

1700mm span

SM172

Angle	Df, N	Drag, N	-L/D	Drag BHP
0	396	26	15.23	1.5
4	553	38	14.55	2.3
8	693	54	12.83	3.2
10	746	63	11.84	3.8
12	788	72	10.94	4.3
14	813	81	10.04	4.8
16	832	91	9.14	5.4

To convert Newtons to Kg divide by 9.81

To convert Newtons to lb divide by 4.459

SM183

Angle	Df, N	Drag, N	-L/D	Drag BHP
0	461	32	14.62	1.9
4	672	48	13.89	2.9
8	857	71	12.01	4.2
12	954	95	10.02	5.7
14	966	108	8.93	6.4
16	964	126	7.67	7.5

SM132

Angle	Df, N	Drag, N	-L/D	Drag BHP
0	650	58	11.18	3.5
4	965	80	12.06	4.8
8	1179	111	10.66	6.6
12	1326	141	9.39	8.4
14	1364	155	8.82	9.2
16	1386	170	8.16	10.1
18	1364	184	7.41	11.0

Dual element wings 1700mm span

183 + flap 120mm, MP= 0deg

Main element at 0deg, 120mm flap

Flap angle	Df, N	Drag, N	-L/D	Drag BHP
20	1383	139	9.98	8.3
25	1563	172	9.11	10.2
30	1713	204	8.41	12.1
35	1755	221	7.93	13.2
40	1707	230	7.42	13.7

Flap angle is relative to main element

132 + flap 120m, MP=0deg

Flap angle	Df, N	Drag, N	-L/D	Drag BHP
20	1478	155	9.54	9.2
30	1861	230	8.09	13.7
40	2139	302	7.09	18.0
45	2214	328	6.76	19.5
50	2193	333	6.58	19.9

203 + flap 170mm, MP = 0deg

Flap angle	Df, N	Drag, N	-L/D	Drag BHP
20	1724	204	8.47	12.1
30	2264	321	7.05	19.1
40	2683	442	6.07	26.4
45	2829	494	5.73	29.4
50	2763	497	5.56	29.6

Main element at 0deg, 170mm flap

Flap angle is relative to main element

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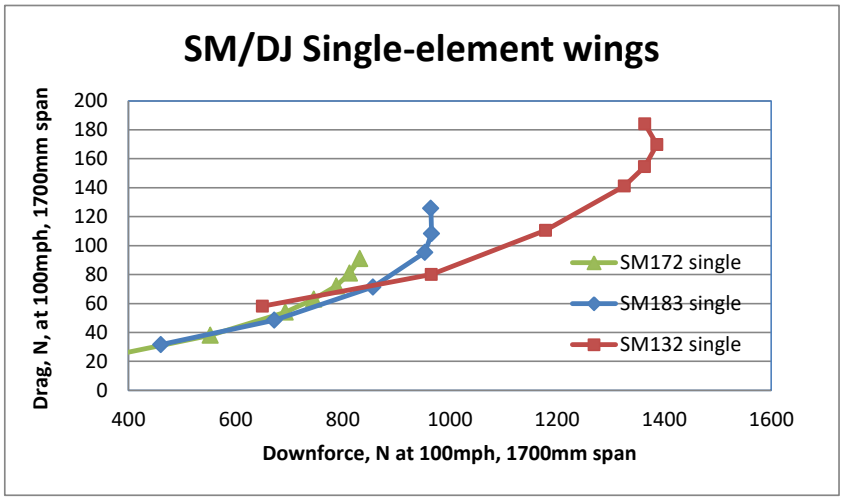

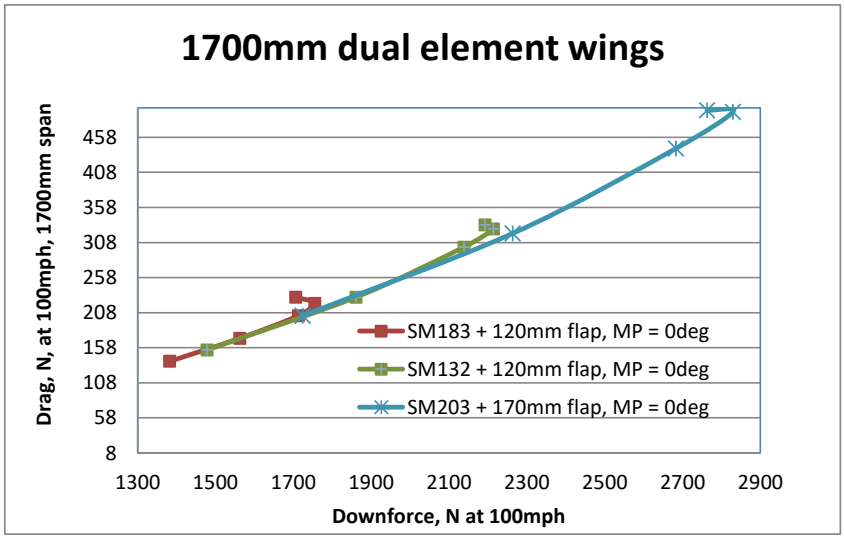

These plots are just to illustrate the downforce and drag values covered by our wing range.
Please ask about other options and combinations, or multi-element wings as required.

To calculate approximate downforce at other spans, multiply Df or drag by (your span/1700)
e.g. Df at 1700mm is 2263.8N, so at 1800mm it will be 1800/1700 x 2263.8 = 2397.0N

To calculate approximate downforce at other speeds, multiply Df or drag by (your speed/100mph)2
e.g. Df at 100mph = 2263.8N, so at 80mph it will be (80/100)2 x 2263.8 = 1448.8N

To convert Newtons to Kg divide by 9.81. To convert Newtons to lb divide by 4.459.

Tell us about your requirements and we will do our best to meet them.

Simon McBeath
SM Designs