

Dr. Martin Lichte's EMX 07 and EMX 14

Dr. Martin Lichte's EMX 07 was originally featured in this column in December of 1988, along with his Phoenix and Elina profiles. Since the coordinate table for the EMX 07 given at that time contained only 36 points, we thought it time for enhanced plotting information. When we wrote that original article, aerodynamic data for this section was not available; the included table lists all of the relevant information.

Also covered this month is one of Dr. Lichte's newer sections, the EMX 14. This section is a bit thicker than the EMX 07, and has a lower pitching moment. Aerodynamic data for the EMX 14 is also included in the accompanying table.

It should be noted the EMX 07 was originally recommended for use on wings with a small amount of sweepback (about 10°), rather than planks. Our own recent experience, however, has shown plank planforms do not need large amounts of reflex and high positive pitching moments. We would not hesitate to use the EMX 07 on a high performance plank planform.

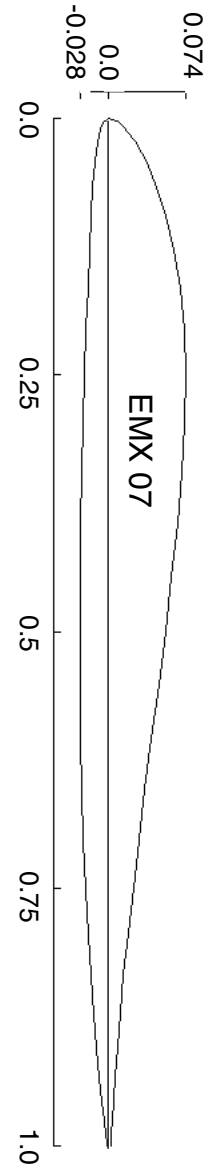
The EMX 14, on the other hand, with a pitching moment near zero, should be used on moderately swept wings. If you choose to use the EMX 14, utilize the Panknin computer program to assure your design has sufficient stability.

AERODYNAMIC DATA

	EMX 07	EMX 14
thickness	9.91%	10.63%
x_{\max} thickness	28.4	34.2
camber	2.54%	1.82%
x_{\max} camber	22.8	34.5
$\alpha_{\text{zero lift}}$	-0.30°	-0.50°
c_m	0.0210	0.0019

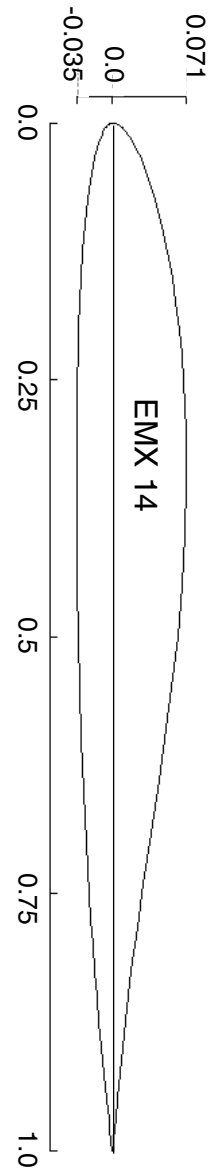
EMX 07

<u>XU</u>	<u>YU</u>	<u>XL</u>	<u>YL</u>
0.000	0.000	0.000	0.000
0.274	0.723	0.274	-0.495
1.093	1.679	1.093	-0.831
2.447	2.692	2.447	-1.113
4.323	3.690	4.323	-1.362
6.699	4.655	6.699	-1.571
9.549	5.555	9.549	-1.751
12.843	6.333	12.843	-1.916
16.543	6.921	16.543	-2.077
20.611	7.291	20.611	-2.236
25.000	7.447	25.000	-2.394
29.663	7.360	29.663	-2.539
34.549	7.074	34.549	-2.656
39.604	6.636	39.604	-2.744
44.774	6.091	44.774	-2.801
50.000	5.475	50.000	-2.825
55.226	4.819	55.226	-2.811
60.396	4.152	60.396	-2.756
65.451	3.504	65.451	-2.659
70.337	2.896	70.337	-2.502
75.000	2.339	75.000	-2.273
79.389	1.845	79.389	-2.013
83.457	1.425	83.457	-1.755
87.157	1.078	87.157	-1.497
90.451	0.793	90.451	-1.225
93.301	0.571	93.301	-0.947
95.677	0.407	95.677	-0.688
97.553	0.291	97.553	-0.466
98.907	0.152	98.907	-0.295
99.726	0.152	99.726	-0.189
100.000	0.152	100.000	-0.152



EMX 14

<u>XU</u>	<u>YU</u>	<u>XL</u>	<u>YL</u>
0.000	0.000	0.000	0.000
0.050	0.258	0.050	-0.231
0.101	0.374	0.101	-0.319
0.151	0.466	0.149	-0.385
0.201	0.546	0.199	-0.438
0.251	0.618	0.249	-0.485
0.301	0.684	0.299	-0.526
0.401	0.803	0.399	-0.600
0.501	0.910	0.499	-0.664
0.752	1.146	0.749	-0.799
1.002	1.351	0.999	-0.915
1.252	1.535	1.249	-1.022
1.502	1.705	1.498	-1.121
2.003	2.010	1.998	-1.303
2.503	2.280	2.498	-1.464
3.504	2.755	3.497	-1.732
5.005	3.348	4.997	-2.040
7.506	4.142	7.496	-2.423
10.007	4.778	9.996	-2.702
12.508	5.302	12.496	-2.913
15.008	5.737	14.996	-3.075
17.509	6.100	17.495	-3.201
20.009	6.403	19.995	-3.298
22.510	6.650	22.495	-3.372
25.010	6.844	24.995	-3.425
27.510	6.989	27.495	-3.462
30.010	7.084	29.995	-3.484
35.010	7.132	34.995	-3.491
40.010	6.998	39.995	-3.457
45.010	6.693	44.995	-3.390
50.009	6.245	49.995	-3.290
55.008	5.684	54.995	-3.159
60.007	5.035	59.996	-2.996
65.006	4.327	64.996	-2.796
67.506	3.958	67.496	-2.681
70.005	3.587	69.996	-2.555
72.505	3.214	72.496	-2.419
75.004	2.845	74.997	-2.270
77.504	2.484	77.497	-2.110
80.003	2.132	79.997	-1.936
82.503	1.795	82.497	-1.747
85.002	1.476	84.998	-1.544
87.502	1.179	87.498	-1.327
90.001	0.910	89.998	-1.094
92.501	0.668	92.499	-0.847
95.001	0.449	94.999	-0.588
97.000	0.285	96.999	-0.375
98.000	0.206	98.000	-0.267
99.000	0.127	99.000	-0.159
100.000	0.050	100.000	-0.050



The great bird will take its first flight...
filling the world with amazement and all records with its fame,
and it will bring eternal glory to the nest where it was born.

— Leonardo da Vinci