

CO⁷ V4 Sections: the RS Series

These are the sections used on Hans-Jürgen Unverferth's CO⁷ V4. As they are used in a rather unique way on this sailplane, refer to the CO⁷ V4 three-view published previously.

The RS001 is used unchanged from the root to the first taper break at 1290 mm — that's over 78% of the span!

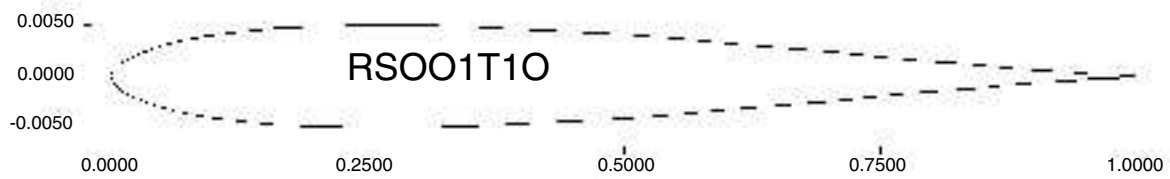
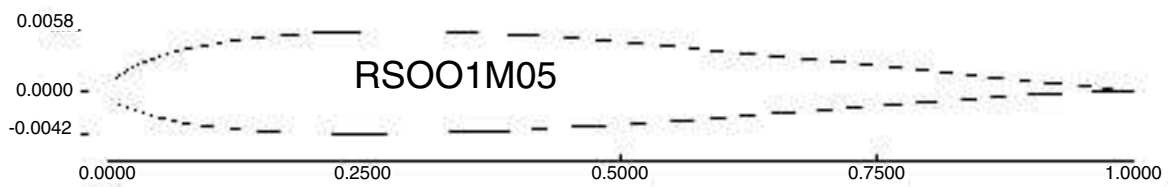
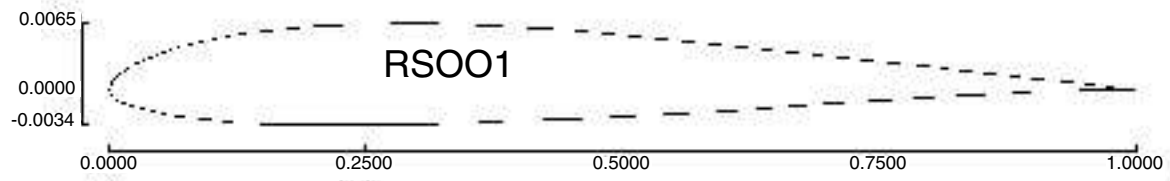
The section designated RS001M05 is used at the second taper break, at 1550 mm. The 260 mm distance between the first and second taper break serves as a transition from the RS001 to the RS001M05 section.

The RS001T10, a symmetrical section used only at the wing tip, terminates a transition from the RS001M05. This transition occurs over the last 100 mm of the wing, from the second taper break.

Note both the RS001 and RS001M05 have substantial negative pitching moments. In fact, the only place a zero pitching moment section is used on the CO⁷ V4 is at the wing tip. This means the entire wing is composed of sections with negative pitching moments. Hence the need for several degrees of washout, despite a relatively severe sweep angle of 25 degrees. CO⁷ V4 thus stands in direct contrast to Hans-Jürgen's previous designs which have used sections with near zero pitching moments across the entire span and incorporated only a degree or so of wing twist.

For those contemplating construction of CO⁷, be advised Hans-Jürgen states there are no performance improvements to be made by changing the wing tip section.

The successor to the "Joined 1," described in the April issue, will be the focus of our next column.



RS001		
n	x	y
0	100.0000	0.0000
1	99.7260	0.0280
2	98.9070	0.1220
3	97.5530	0.2920
4	95.6770	0.5260
5	93.3010	0.8070
6	90.4510	1.1330
7	87.1570	1.5070
8	83.4570	1.9250
9	79.3890	2.3730
10	75.0000	2.8500
11	70.3370	3.3540
12	65.4510	3.8570
13	60.3960	4.3530
14	55.2260	4.8890
15	50.0000	5.4360
16	44.7740	5.8890
17	39.6040	6.2150
18	34.5490	6.4290
19	29.6630	6.5190
20	25.0000	6.4720
21	20.6110	6.2810
22	16.5430	5.9470
23	12.8430	5.4780
24	9.5490	4.8840
25	6.6990	4.1780
26	4.3230	3.3730
27	2.4470	2.4900
28	1.0930	1.5640
29	0.2740	0.6920
30	0.0000	0.0000

RS001		
n	x	y
31	0.2740	-0.5390
32	1.0930	-1.0430
33	2.4470	-1.5520
34	4.3230	-2.0360
35	6.6990	-2.4800
36	9.5490	-2.8510
37	12.8430	-3.1210
38	16.5430	-3.2880
39	20.6110	-3.3620
40	25.0000	-3.3550
41	29.6630	-3.2800
42	34.5490	-3.1460
43	39.6040	-2.9660
44	44.7740	-2.7510
45	50.0000	-2.5200
46	55.2260	-2.2710
47	60.3960	-1.9670
48	65.4510	-1.6210
49	70.3370	-1.2850
50	75.0000	-0.9740
51	79.3890	-0.6940
52	83.4570	-0.4570
53	87.1570	-0.2640
54	90.4510	-0.1190
55	93.3010	-0.0260
56	95.6770	0.0210
57	97.5530	0.0320
58	98.9070	0.0210
59	99.7260	0.0060
60	100.0000	0.0000

RS001M05		
n	x	y
0	100.0000	0.0000
1	99.9013	0.0068
2	99.6057	0.0288
3	99.1144	0.0688
4	98.4292	0.1298
5	97.5528	0.2120
6	96.4888	0.3138
7	95.2414	0.4326
8	93.8153	0.5668
9	92.2164	0.7172
10	90.4508	0.8846
11	88.5257	1.0700
12	86.4484	1.2730
13	84.2274	1.4918
14	81.8712	1.7231
15	79.3893	1.9657
16	76.7913	2.2202
17	74.0877	2.4867
18	71.2890	2.7625
19	68.4062	3.0418
20	65.4508	3.3202
21	62.4345	3.5962
22	59.3691	3.8770
23	56.2667	4.1660
24	53.1395	4.4581
25	50.0000	4.7394

RS001M05		
n	x	y
26	46.8605	4.9904
27	43.7333	5.2071
28	40.6309	5.3871
29	37.5655	5.5336
30	34.5492	5.6472
31	31.5938	5.7209
32	28.7110	5.7550
33	25.9123	5.7452
34	23.2087	5.6899
35	20.6107	5.5904
36	18.1288	5.4420
37	15.7726	5.2498
38	13.5516	5.0119
39	11.4743	4.7294
40	9.5492	4.4072
41	7.7836	4.0417
42	6.1847	3.6421
43	4.7586	3.2096
44	3.5112	2.7499
45	2.4472	2.2720
46	1.5708	1.7729
47	0.8856	1.2782
48	0.3943	0.8042
49	0.0987	0.3697
50	0.0000	0.0000

RS001M05		
n	x	y
51	0.0987	-0.3409
52	0.3943	-0.6971
53	0.8856	-1.0592
54	1.5708	-1.4298
55	2.4472	-1.8030
56	3.5112	-2.1598
57	4.7586	-2.5039
58	6.1847	-2.8281
59	7.7836	-3.1250
60	9.5492	-3.3907
61	11.4743	-3.6152
62	13.5516	-3.8022
63	15.7726	-3.9492
64	18.1288	-4.0578
65	20.6107	-4.1310
66	23.2087	-4.1672
67	25.9123	-4.1716
68	28.7110	-4.1448
69	31.5938	-4.0882
70	34.5492	-4.0056
71	37.5655	-3.8982
72	40.6309	-3.7704
73	43.7333	-3.6233
74	46.8605	-3.4593
75	50.0000	-3.2814

RS001M05		
n	x	y
76	53.1395	-3.0896
77	56.2667	-2.8841
78	59.3691	-2.6647
79	62.4345	-2.4352
80	65.4508	-2.2023
81	68.4062	-1.9718
82	71.2890	-1.7468
83	74.0877	-1.5291
84	76.7913	-1.3214
85	79.3893	-1.1262
86	81.8712	-0.9460
87	84.2274	-0.7800
88	86.4484	-0.6288
89	88.5257	-0.4944
90	90.4508	-0.3776
91	92.2164	-0.2801
92	93.8153	-0.2000
93	95.2414	-0.1359
94	96.4888	-0.0865
95	97.5528	-0.0500
96	98.4292	-0.0259
97	99.1144	-0.0113
98	99.6057	-0.0040
99	99.9013	-0.0008
100	100.0000	0.0000

RSOO1T10		
n	x	y
0	100.0000	0.0000
1	99.7260	0.0112
2	98.9070	0.0513
3	97.5530	0.1321
4	95.6770	0.2566
5	93.3010	0.4233
6	90.4510	0.6362
7	87.1570	0.8999
8	83.4570	1.2104
9	79.3890	1.5584
10	75.0000	1.9431
11	70.3370	2.3572
12	65.4510	2.7835
13	60.3960	3.2114
14	55.2260	3.6382
15	50.0000	4.0427
16	44.7740	4.3902
17	39.6040	4.6651
18	34.5490	4.8653
19	29.6630	4.9792
20	25.0000	4.9934
21	20.6110	4.8999
22	16.5430	4.6926
23	12.8430	4.3694
24	9.5490	3.9304
25	6.6990	3.3831
26	4.3230	2.7485
27	2.4470	2.0539
28	1.0930	1.3247
29	0.2740	0.6255
30	0.0000	0.0000

RSOO1T10		
n	x	y
31	0.2740	-0.6255
32	1.0930	-1.3247
33	2.4470	-2.0539
34	4.3230	-2.7485
35	6.6990	-3.3831
36	9.5490	-3.9304
37	12.8430	-4.3694
38	16.5430	-4.6926
39	20.6110	-4.8999
40	25.0000	-4.9934
41	29.6630	-4.9792
42	34.5490	-4.8653
43	39.6040	-4.6651
44	44.7740	-4.3902
45	50.0000	-4.0427
46	55.2260	-3.6382
47	60.3960	-3.2114
48	65.4510	-2.7835
49	70.3370	-2.3572
50	75.0000	-1.9431
51	79.3890	-1.5584
52	83.4570	-1.2104
53	87.1570	-0.8999
54	90.4510	-0.6362
55	93.3010	-0.4233
56	95.6770	-0.2566
57	97.5530	-0.1321
58	98.9070	-0.0513
59	99.7260	-0.0112
60	100.0000	0.0000