



## **Dataset Description**

Experimental parameter study for passive vortex generators on a thick airfoil

---

**March 2017**

Daniel Baldacchino     daniel.baldacchino(at)alumni.um.edu.mt

Carlos Ferreira        C.J.SimaoFerreira(at)tudelft.nl

*Wind Energy, Faculty of Aerospace Engineering, Delft University of Technology*

---

This document describes the experimental dataset presented in the article “Experimental parameter study for passive vortex generators on a thick airfoil” [1]. The dataset includes all time/spanwise averaged pressure distributions and lift/drag polars for uncontrolled and controlled cases. The data zip file contains the following information:

1. Geometry
  - I. *du97.dat* file containing the airfoil coordinates
2. Performance
  - I. *cp\_dist* (pressure distributions and an additional README file)
  - II. *pol\_avg* (load data)

Data files therein are named according to **c###.xxx**

- “c###” stands for the Case number, where ### is the Case ID detailed in Table 1
- “xxx” represents the type of data:
  - pol – polar
  - cpd – pressure distribution

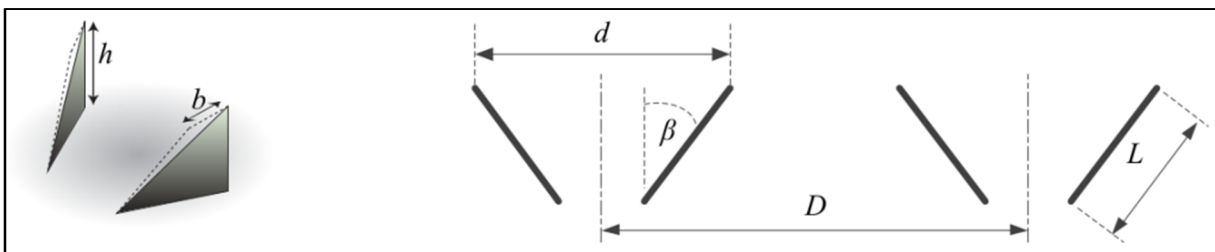
The metrics analysed in the journal paper have been tabulated for convenience, together with all the lift and drag data. These can be found at the end of this document with additional airfoil polars.

## Abbreviations

BL	Boundary Layer
C-Delta	Cropped Delta (shape of the VG vane)
CoR	Co-Rotating
Config.	Configuration
cln	clean ( Boundary layer in free transition)
CtR	Counter-Rotating
CU	Common Upwash
CD	Common Downwash
NoVG	No Vortex Generators
Re	Reynolds number
ZZ	ZigZag tape (boundary layer artificially tripped for turbulent conditions on the suction side)
VG	Vortex Generator

## Symbols

$C_d$	Corrected airfoil drag coefficient
$C_l$	Corrected airfoil lift coefficient
$d$	Internal pair spacing
$D$	Pair spacing
$h$	Vane height
$L$	Vane length
$U_\infty$	Effective inflow velocity
$x_{VG}/c$	VG array mounting position
$\alpha$	Corrected airfoil angle of attack
$\beta$	Vane angle



Vortex generator nomenclature [1]

## References

- [1] D. Baldacchino, C. Ferreira, D. de Tavernier, N. Timmer, G. J. W. van Bussel. "Experimental parameter study for passive vortex generators on a thick airfoil", *Wind Energy* (submitted), 2017.

Table 1: Case ID description

CASE ID	VG (Yes/No)	BL	Array chordwise position	Vane height	Vane length	Internal pair spacing	Pair spacing	Vane Angle	Configuration & shape	Varying Parameter
			$x_{VG}/c$ [%]	$h$ [mm]	$L$ [mm]	$d$ [mm]	$D$ [mm]	$\beta$ [deg]		
001	N	cln	-	-	-	-	-	-	-	(NoVG)
002	N	ZZ	-	-	-	-	-	-	-	
003	Y	cln	10	2.5	7.5	8.75	17.5	$\pm 15$	CtR-CD, Delta	Height, chordwise positions and boundary layer state
004	Y	cln	20	2.5	7.5	8.75	17.5	$\pm 15$	CtR-CD, Delta	
005	Y	cln	30	2.5	7.5	8.75	17.5	$\pm 15$	CtR-CD, Delta	
006	Y	cln	40	2.5	7.5	8.75	17.5	$\pm 15$	CtR-CD, Delta	
007	Y	ZZ	10	2.5	7.5	8.75	17.5	$\pm 15$	CtR-CD, Delta	
008	Y	ZZ	20	2.5	7.5	8.75	17.5	$\pm 15$	CtR-CD, Delta	
009	Y	ZZ	30	2.5	7.5	8.75	17.5	$\pm 15$	CtR-CD, Delta	
010	Y	ZZ	40	2.5	7.5	8.75	17.5	$\pm 15$	CtR-CD, Delta	
011	Y	cln	10	5.0	15.0	17.5	35.0	$\pm 15$	CtR-CD, Delta	
012	Y	cln	20	5.0	15.0	17.5	35.0	$\pm 15$	CtR-CD, Delta	
013	Y	cln	30	5.0	15.0	17.5	35.0	$\pm 15$	CtR-CD, Delta	
014	Y	cln	40	5.0	15.0	17.5	35.0	$\pm 15$	CtR-CD, Delta	
015	Y	cln	50	5.0	15.0	17.5	35.0	$\pm 15$	CtR-CD, Delta	
016	Y	ZZ	10	5.0	15.0	17.5	35.0	$\pm 15$	CtR-CD, Delta	
017	Y	ZZ	20	5.0	15.0	17.5	35.0	$\pm 15$	CtR-CD, Delta	
018	Y	ZZ	30	5.0	15.0	17.5	35.0	$\pm 15$	CtR-CD, Delta	
019	Y	ZZ	40	5.0	15.0	17.5	35.0	$\pm 15$	CtR-CD, Delta	
020	Y	ZZ	50	5.0	15.0	17.5	35.0	$\pm 15$	CtR-CD, Delta	
021	Y	cln	20	10.0	30.0	35.0	70.0	$\pm 15$	CtR-CD, Delta	
022	Y	cln	30	10.0	30.0	35.0	70.0	$\pm 15$	CtR-CD, Delta	
023	Y	cln	40	10.0	30.0	35.0	70.0	$\pm 15$	CtR-CD, Delta	
024	Y	cln	50	10.0	30.0	35.0	70.0	$\pm 15$	CtR-CD, Delta	
025	Y	ZZ	20	10.0	30.0	35.0	70.0	$\pm 15$	CtR-CD, Delta	
026	Y	ZZ	30	10.0	30.0	35.0	70.0	$\pm 15$	CtR-CD, Delta	
027	Y	ZZ	40	10.0	30.0	35.0	70.0	$\pm 15$	CtR-CD, Delta	
028	Y	ZZ	50	10.0	30.0	35.0	70.0	$\pm 15$	CtR-CD, Delta	

Table 1 (cont) Case ID description

CASE ID	VG (Yes/No)	BL	Array chordwise position	Vane height	Vane length	Internal pair spacing	Pair spacing	Vane Angle	Configuration & shape	Varying Parameter
			$x_{VG}/c$ [%]	$h$ [mm]	$L$ [mm]	$d$ [mm]	$D$ [mm]	$\beta$ [deg]		
029	Y	cln	20	5.0	15.0	17.5	35.0	$\pm 10$	CtR-CD, Delta	Vane angle
030	Y	cln	20	5.0	15.0	17.5	35.0	$\pm 12$	CtR-CD, Delta	
031	Y	cln	20	5.0	15.0	17.5	35.0	$\pm 18$	CtR-CD, Delta	
032	Y	cln	20	5.0	15.0	17.5	35.0	$\pm 20$	CtR-CD, Delta	
033	Y	cln	20	5.0	15.0	17.5	35.0	$\pm 25$	CtR-CD, Delta	
034	Y	cln	20	5.0	10.0	17.5	35.0	$\pm 15$	CtR-CD, Delta	Vane length
035	Y	cln	20	5.0	20.0	17.5	35.0	$\pm 15$	CtR-CD, Delta	
036	Y	cln	20	5.0	25.0	17.5	35.0	$\pm 15$	CtR-CD, Delta	
037	Y	cln	20	5.0	15.0	17.5	50.0	$\pm 15$	CtR-CD, Delta	Spacing
038	Y	cln	20	5.0	15.0	17.5	35.0	$\pm 15$	CtR-CD, C-Delta	Shape
039	Y	cln	20	5.0	15.0	17.5	35.0	$\mp 15$	CtR-CU, Delta	Config.
040	Y	cln	20	5.0	15.0	17.5	35.0	15	CoR, Delta	
041**	Y	cln	20	10.0	30.0	35.0	70.0	$\pm 15$	CtR-CD, Delta	Mounting strip

\*\*Same as Case ID: 021 but without mounting strip

# 1 Tabulated experimental data

Boundary Layer	VG height [mm]	Chordwise position $x_{VG}/c$ , [%]	$C_l _{max}$ [–]	$\alpha_{C_l _{max}}$ [deg]	$C_d _{\alpha=0}$ [–]	$C_l/\alpha$ [deg <sup>-1</sup> ]	$C_l/C_d _{max}$ [–]	$\alpha_{C_l/C_d _{max}}$ [deg]
Free transition	2.5	10	1.497	27.35	1.548	0.1108	38.72	7.17
		20	1.564	18.88	1.451	0.1207	63.18	8.22
		30	1.722	14.41	1.362	0.1252	79.13	10.29
		40	1.696	13.39	1.288	0.1262	90.08	11.34
	5	10	1.779	17.93	1.618	0.1185	53.15	11.30
		20	1.902	15.44	1.680	0.1239	64.68	10.28
		30	1.941	15.45	1.584	0.1274	73.25	11.33
		40	1.738	12.87	1.484	0.1249	79.04	11.34
		50	1.715	12.37	1.413	0.1279	87.59	11.34
	10	20	1.742	13.38	1.831	0.1260	57.74	10.28
		30	1.909	15.43	1.669	0.1273	61.65	11.32
		40	1.844	13.92	1.588	0.1257	70.42	11.34
		50	1.814	13.41	1.546	0.1284	76.82	11.34
Forced transition	2.5	10	1.461	26.33	1.567	0.1078	34.94	6.15
		20	1.575	17.88	1.589	0.1155	45.60	9.23
		30	1.621	14.38	1.538	0.1213	58.83	10.28
		40	1.481	11.32	1.497	0.1232	62.36	10.29
	5	10	1.728	16.90	1.646	0.1162	46.90	11.29
		20	1.800	17.43	1.817	0.1204	49.70	11.82
		30	1.861	15.43	1.767	0.1235	59.17	13.39
		40	1.645	12.37	1.695	0.1236	62.96	12.37
		50	1.570	11.32	1.603	0.1260	65.12	10.80
	10	20	1.742	13.38	1.961	0.1233	46.59	12.36
		30	1.853	14.92	2.006	0.1240	50.45	12.86
		40	1.766	13.40	1.855	0.1252	56.11	12.87
		50	1.711	12.88	1.791	0.1258	57.50	11.33

Table 1: Metrics pertaining to the sensitivity of the vane height, array chordwise placement, and boundary layer state.

Parameter	Value	$C_l _{max}$ [—]	$\alpha_{C_l _{max}}$ [deg]	$C_d _{\alpha=0}$ [—]	$C_l/\alpha$ [deg <sup>-1</sup> ]	$C_l/C_d _{max}$ [—]	$\alpha_{C_l/C_d _{max}}$ [deg]
Vane Angle	10°	1.878	15.45	1.529	0.1256	73.46	10.29
	12°	2.036	18.00	1.597	0.1242	69.57	11.32
	15°	1.902	15.44	1.680	0.1239	64.68	10.28
	18°	1.837	14.93	1.705	0.1226	59.77	11.32
	20°	1.844	15.44	1.698	0.1245	60.36	10.29
	25°	1.777	14.41	1.948	0.1233	48.35	11.32
Vane Length	2h	1.824	14.42	1.591	0.1256	69.34	11.33
	3h	1.902	15.44	1.680	0.1239	64.68	10.28
	4h	1.925	15.45	1.726	0.1255	61.13	10.29
	5h	1.899	15.44	1.742	0.1248	58.45	10.29
Array spacing	7h	1.902	15.44	1.680	0.1239	64.68	10.28
	10h	1.853	15.43	1.704	0.1260	64.16	10.29
Array configuration	CtR-CD	1.902	15.44	1.680	0.1239	64.68	10.28
	CtR-CU	1.739	17.89	1.620	0.1198	56.56	10.26
	CoR	1.589	12.36	1.521	0.1252	72.17	10.28
Vane Shape	Delta	1.902	15.44	1.680	0.1239	64.68	10.28
	Cropped-Delta	2.075	18.51	1.677	0.1228	63.67	11.32

Table 2: Metrics pertaining to the sensitivity of the vane angle, length, array spacing, configuration and vane shape for a freely transitioning boundary layer.

Run Nr.	$\alpha$ [deg]	$C_l$ [-]	$C_d$ [-]	Re [-]	$U_\infty$ [m/s]
1	-0.035	0.2660	0.0110	1992000	45.23
2	0.997	0.3955	0.0112	1992000	45.23
3	2.030	0.5168	0.0112	1992000	45.23
4	3.070	0.6482	0.0114	1991000	45.21
5	4.098	0.7742	0.0116	1990000	45.19
6	5.137	0.8965	0.0123	1989000	45.18
7	6.179	1.0136	0.0126	1988000	45.16
8	7.198	1.1234	0.0133	1987000	45.13
9	8.233	1.2359	0.0139	1986000	45.11
10	9.263	1.3391	0.0148	1984000	45.08
11	10.293	1.4199	0.0158	1983000	45.05
12	10.812	1.4620	0.0167	1982000	45.03
13	11.320	1.4995	0.0176	1980000	45.00
14	11.835	1.5233	0.0189	1979000	44.98
15	12.347	1.5333	0.0201	1977000	44.94
16	12.845	1.5166	0.0313	1974000	44.89
17	13.280	1.3042	0.0530	1961000	44.58
18	13.743	1.2325	0.0619	1996000	45.41
19	14.236	1.1805	0.0696	1992000	45.33
20	15.216	1.1121	0.0857	1989000	45.27
21	16.218	1.0701	0.1011	1988000	45.24
22	17.205	1.0472	0.1163	1982000	45.12
23	18.192	1.0356	0.1325	1978000	45.04
24	19.183	1.0583	0.1529	1978000	45.05
25	20.228	1.0894	0.1775	1918000	43.68
26	21.214	1.1210	0.2008	1989000	45.33
27	22.227	1.1603	0.2255	1972000	44.97
28	23.219	1.1808	0.2482	1957000	44.64
29	24.224	1.2251	0.2803	1981000	45.20
30	25.242	1.2195	0.3045	1964000	44.82
31	26.231	1.2393	0.3361	1980000	45.21
32	27.228	1.2456	0.3622	1962000	44.82
33	28.223	1.2723	0.3952	1978000	45.21
34	29.228	1.2759	0.4239	1958000	44.77
35	30.246	1.2854	0.4534	1981000	45.32

Table 3: Case **c001**

Run Nr.	$\alpha$ [deg]	$C_l$ [-]	$C_d$ [-]	Re [-]	$U_\infty$ [m/s]
1	-0.045	0.2235	0.0136	1985000	45.36
2	0.990	0.3503	0.0140	1985000	45.36
3	2.022	0.4646	0.0144	1984000	45.35
4	3.061	0.5862	0.0150	1983000	45.34
5	4.087	0.7009	0.0158	1982000	45.31
6	5.124	0.8088	0.0168	1981000	45.30
7	6.163	0.9068	0.0181	1980000	45.29
8	7.177	0.9890	0.0200	1979000	45.26
9	8.205	1.0666	0.0226	1977000	45.22
10	9.218	1.1134	0.0263	1974000	45.17
11	10.175	0.9944	0.0486	1960000	44.86
12	10.643	0.9303	0.0751	2005000	45.92
13	11.141	0.9011	0.0760	2001000	45.83
14	11.643	0.8857	0.0799	1998000	45.77
15	12.144	0.8897	0.0865	1998000	45.77
16	12.641	0.9171	0.0950	1998000	45.78
17	13.162	0.9289	0.1003	1997000	45.75
18	13.643	0.9072	0.1019	1991000	45.63
19	14.154	0.9331	0.1108	1992000	45.65
20	15.174	0.9527	0.1214	1950000	44.70
21	16.195	0.9707	0.1343	1995000	45.75
22	17.193	0.9808	0.1435	1986000	45.56
23	18.195	1.0227	0.1567	1976000	45.35
24	19.203	1.0500	0.1703	1967000	45.13
25	20.224	1.0916	0.1876	1990000	45.68
26	21.211	1.1154	0.2050	1979000	45.43
27	22.219	1.1354	0.2247	1966000	45.15
28	23.215	1.1693	0.2521	1984000	45.58
29	24.217	1.1921	0.2786	1965000	45.15
30	25.239	1.2081	0.3069	1983000	45.59
31	26.223	1.2143	0.3353	1965000	45.18
32	27.220	1.2266	0.3651	1980000	45.55
33	28.216	1.2461	0.3963	1958000	45.06
34	29.221	1.2587	0.4285	1981000	45.60
35	30.237	1.2626	0.4553	1960000	45.15

Table 4: Case **c002**

Run Nr.	$\alpha$ [deg]	$C_l$ [-]	$C_d$ [-]	Re [-]	$U_\infty$ [m/s]
1	-6.240	-0.5565	0.0459	1988000	45.32
2	-5.202	-0.4322	0.0259	1986000	45.28
3	-4.170	-0.3015	0.0188	1986000	45.27
4	-2.101	-0.0300	0.0163	1986000	45.27
5	-0.038	0.2379	0.0152	1985000	45.26
6	2.023	0.4903	0.0158	1984000	45.24
7	4.095	0.7554	0.0165	1982000	45.19
8	5.131	0.8822	0.0171	1981000	45.18
9	6.173	1.0061	0.0177	1979000	45.15
10	7.193	1.1228	0.0184	1979000	45.14
11	8.230	1.2484	0.0189	1977000	45.10
12	9.258	1.3659	0.0197	1976000	45.08
13	10.282	1.4673	0.0203	1974000	45.05
14	11.318	1.5360	0.0232	1972000	44.99
15	12.358	1.5893	0.0280	1999000	45.63
16	13.338	1.5337	0.0502	1975000	45.09
17	14.343	1.5856	0.0585	1999000	45.65
18	15.347	1.5969	0.0854	1984000	45.30
19	15.841	1.6047	0.1032	1976000	45.11
20	16.356	1.6163	0.1156	2002000	45.72
21	16.832	1.6297	0.1277	1998000	45.62
22	17.329	1.6275	0.1421	1994000	45.54
23	17.819	1.6174	0.1560	1990000	45.45
24	18.311	1.5897	0.1683	1989000	45.43
25	18.812	1.5562	0.1795	1987000	45.41
26	19.288	1.5052	0.1842	1981000	45.28
27	19.792	1.4634	0.1909	1977000	45.19
28	20.267	1.4178	0.1954	1971000	45.05
29	21.263	1.3221	0.2047	1960000	44.81
30	22.242	1.2366	0.2199	1950000	44.58
31	23.223	1.1795	0.2385	1941000	44.40
32	24.209	1.1404	0.2511	1931000	44.17
33	25.228	1.1263	0.2725	1919000	43.90

Table 5: Case **c003**

Run Nr.	$\alpha$ [deg]	$C_l$ [-]	$C_d$ [-]	Re [-]	$U_\infty$ [m/s]
1	-0.043	0.2365	0.0166	1984000	44.90
2	0.994	0.3640	0.0170	1983000	44.89
3	2.020	0.4859	0.0173	1982000	44.88
4	3.059	0.6149	0.0178	1980000	44.86
5	4.087	0.7424	0.0183	1979000	44.84
6	5.125	0.8659	0.0190	1977000	44.82
7	6.166	0.9861	0.0197	1976000	44.80
8	7.185	1.0989	0.0204	1974000	44.78
9	8.219	1.2186	0.0212	1972000	44.74
10	9.246	1.3316	0.0221	1970000	44.71
11	10.273	1.4296	0.0229	2000000	45.39
12	11.313	1.5323	0.0251	1996000	45.33
13	12.358	1.6113	0.0270	1992000	45.26
14	13.374	1.6884	0.0296	1988000	45.17
15	14.392	1.7551	0.0322	1982000	45.04
16	15.413	1.8045	0.0460	1974000	44.88
17	15.921	1.8186	0.0510	1969000	44.76
18	16.444	1.8234	0.0585	1995000	45.37
19	16.921	1.8241	0.0655	1986000	45.19
20	17.435	1.8318	0.0744	1983000	45.11
21	17.935	1.8427	0.0844	1991000	45.31
22	18.443	1.8324	0.1020	1979000	45.04
23	18.940	1.8195	0.1174	1974000	44.95
24	19.419	1.8031	0.1349	1964000	44.72
25	19.927	1.7740	0.1499	1959000	44.61
26	20.390	1.7384	0.1678	1951000	44.44
27	21.364	1.6251	0.2052	1932000	44.01
28	22.324	1.5063	0.2332	1918000	43.70
29	23.248	1.3216	0.2580	1908000	43.47
30	24.221	1.1919	0.2670	1899000	43.28
31	25.227	1.1437	0.2762	1888000	43.03

Table 6: Case **c004**

Run Nr.	$\alpha$ [deg]	$C_l$ [-]	$C_d$ [-]	Re [-]	$U_\infty$ [m/s]
1	-6.227	-0.5310	0.0252	1978000	44.92
2	-5.198	-0.4129	0.0155	1979000	44.94
3	-4.168	-0.2798	0.0154	1980000	44.95
4	-2.100	-0.0085	0.0157	1980000	44.97
5	-0.037	0.2611	0.0158	1980000	44.97
6	2.032	0.5189	0.0162	1978000	44.94
7	4.101	0.7881	0.0166	1977000	44.91
8	5.137	0.9192	0.0170	1975000	44.89
9	6.180	1.0481	0.0174	1974000	44.87
10	7.199	1.1607	0.0181	1973000	44.84
11	8.236	1.2770	0.0193	1972000	44.82
12	9.267	1.3948	0.0201	1969000	44.78
13	10.283	1.4925	0.0207	2001000	45.51
14	11.334	1.6130	0.0220	1998000	45.45
15	12.382	1.7134	0.0243	1996000	45.42
16	13.403	1.8055	0.0269	1993000	45.36
17	14.425	1.8844	0.0297	1990000	45.31
18	15.454	1.9407	0.0355	1985000	45.19
19	15.937	1.8888	0.0583	1974000	44.95
20	16.442	1.8290	0.0828	2000000	45.55
21	16.890	1.7117	0.1065	1990000	45.33
22	17.338	1.5567	0.1336	1980000	45.10
23	17.743	1.2483	0.1518	1971000	44.90
24	18.241	1.2134	0.1641	1968000	44.83
25	18.724	1.1121	0.1560	1963000	44.74
26	19.214	1.1001	0.1628	1959000	44.66
27	19.725	1.0652	0.1629	1954000	44.54
28	20.204	1.0635	0.1689	1948000	44.41
29	21.229	1.0970	0.1959	1937000	44.16
30	22.231	1.1466	0.2220	1921000	43.81
31	23.228	1.1796	0.2479	1905000	43.46
32	24.224	1.2044	0.2764	1994000	45.51
33	25.245	1.2430	0.3101	1971000	45.00

Table 7: Case **c005**

Run Nr.	$\alpha$ [deg]	$C_l$ [-]	$C_d$ [-]	Re [-]	$U_\infty$ [m/s]
1	-6.235	-0.5575	0.0154	1979000	45.22
2	-5.204	-0.4362	0.0157	1982000	45.27
3	-4.180	-0.3084	0.0156	1983000	45.30
4	-2.108	-0.0444	0.0158	1982000	45.30
5	-0.044	0.2159	0.0162	1983000	45.30
6	2.015	0.4583	0.0171	1981000	45.27
7	4.085	0.7104	0.0183	1980000	45.25
8	5.119	0.8284	0.0192	1978000	45.21
9	6.160	0.9428	0.0199	1978000	45.21
10	7.178	1.0494	0.0208	1976000	45.17
11	8.212	1.1626	0.0218	1976000	45.16
12	9.238	1.2677	0.0229	1973000	45.11
13	10.264	1.3566	0.0240	1973000	45.11
14	11.304	1.4508	0.0265	1970000	45.04
15	12.350	1.5322	0.0293	2001000	45.76
16	13.356	1.5938	0.0319	1993000	45.58
17	14.349	1.5994	0.0505	1978000	45.25
18	15.374	1.6537	0.0601	1970000	45.08
19	15.884	1.6830	0.0645	2001000	45.78
20	16.395	1.7067	0.0717	1996000	45.67
21	16.888	1.7304	0.0809	1991000	45.57
22	17.387	1.7346	0.0983	1982000	45.35
23	17.887	1.7388	0.1118	1971000	45.12
24	18.388	1.7276	0.1327	1972000	45.16
25	18.893	1.7264	0.1442	1966000	45.02
26	19.378	1.7173	0.1561	1960000	44.89
27	19.893	1.7125	0.1658	1955000	44.79
28	20.357	1.6681	0.1795	1949000	44.66
29	21.306	1.4861	0.2182	1935000	44.33
30	22.271	1.3683	0.2408	1923000	44.06
31	23.219	1.2055	0.2554	1913000	43.84
32	24.199	1.1196	0.2497	1905000	43.67
33	25.219	1.0977	0.2651	1892000	43.37

Table 8: Case **c006**

Run Nr.	$\alpha$ [deg]	$C_l$ [-]	$C_d$ [-]	Re [-]	$U_\infty$ [m/s]
1	-6.238	-0.5530	0.0192	1983000	45.43
2	-5.202	-0.4271	0.0152	1985000	45.47
3	-4.173	-0.2941	0.0157	1986000	45.49
4	-2.104	-0.0235	0.0163	1986000	45.50
5	-0.033	0.2502	0.0170	1986000	45.50
6	2.025	0.5061	0.0178	1985000	45.47
7	4.093	0.7700	0.0189	1984000	45.44
8	5.133	0.8991	0.0195	1982000	45.41
9	6.176	1.0246	0.0200	1982000	45.40
10	7.196	1.1435	0.0208	1980000	45.37
11	8.232	1.2707	0.0215	1979000	45.35
12	9.268	1.3917	0.0224	1977000	45.31
13	10.285	1.4925	0.0233	1977000	45.30
14	11.321	1.5701	0.0255	1973000	45.23
15	12.365	1.6456	0.0284	1972000	45.20
16	13.380	1.7312	0.0321	2000000	45.87
17	14.407	1.8092	0.0360	1997000	45.81
18	15.429	1.8530	0.0454	1989000	45.64
19	15.924	1.8482	0.0531	1983000	45.50
20	16.448	1.8459	0.0644	1993000	45.74
21	16.917	1.8287	0.0801	1982000	45.49
22	17.423	1.8272	0.0929	1977000	45.36
23	17.909	1.8215	0.1057	1969000	45.19
24	18.416	1.7999	0.1207	1960000	44.98
25	18.908	1.7536	0.1401	1949000	44.72
26	19.393	1.7297	0.1516	1943000	44.61
27	19.874	1.6480	0.1743	1934000	44.40
28	20.317	1.5463	0.1932	1923000	44.15
29	21.313	1.4747	0.2240	1911000	43.87
30	22.247	1.2795	0.2373	1899000	43.60
31	23.240	1.2411	0.2512	1892000	43.42
32	24.202	1.1047	0.2446	1992000	45.73
33	25.218	1.1028	0.2675	1975000	45.37

Table 9: Case **c007**

Run Nr.	$\alpha$ [deg]	$C_l$ [-]	$C_d$ [-]	Re [-]	$U_\infty$ [m/s]
1	-4.186	-0.3022	0.0158	1987000	45.79
2	-2.107	-0.0343	0.0164	1987000	45.80
3	-0.043	0.2291	0.0168	1987000	45.79
4	2.020	0.4769	0.0176	1986000	45.77
5	4.087	0.7363	0.0185	1983000	45.73
6	5.118	0.8608	0.0192	1982000	45.71
7	6.167	0.9820	0.0198	1981000	45.68
8	7.186	1.0983	0.0205	1980000	45.67
9	8.218	1.2219	0.0211	1978000	45.64
10	9.253	1.3405	0.0221	1977000	45.62
11	10.274	1.4419	0.0228	1976000	45.58
12	11.317	1.5573	0.0245	1974000	45.55
13	12.365	1.6507	0.0266	1971000	45.50
14	13.386	1.7449	0.0297	2001000	46.19
15	13.897	1.7887	0.0310	1998000	46.14
16	14.409	1.8343	0.0326	1997000	46.12
17	14.934	1.8717	0.0338	1995000	46.09
18	15.435	1.9158	0.0354	1994000	46.07
19	15.954	1.9551	0.0368	1991000	46.02
20	16.485	1.9874	0.0380	1991000	46.02
21	16.981	2.0242	0.0394	1987000	45.93
22	17.493	2.0478	0.0405	1987000	45.92
23	17.999	2.0703	0.0426	1981000	45.81
24	18.513	2.0753	0.0509	1975000	45.67
25	19.020	2.0545	0.0711	1978000	45.75
26	19.512	2.0379	0.0870	1996000	46.17
27	20.013	1.9996	0.1092	1982000	45.86
28	20.467	1.9307	0.1327	1969000	45.56
29	20.950	1.8858	0.1551	1994000	46.16
30	21.443	1.8392	0.1776	1984000	45.93
31	21.860	1.6730	0.2083	1971000	45.64

Table 10: Case **c008**

Run Nr.	$\alpha$ [deg]	$C_l$ [-]	$C_d$ [-]	Re [-]	$U_\infty$ [m/s]
1	-6.239	-0.5473	0.0162	1978000	45.37
2	-5.197	-0.4266	0.0146	1980000	45.41
3	-4.173	-0.2977	0.0154	1982000	45.44
4	-2.117	-0.0342	0.0160	1982000	45.45
5	-0.036	0.2356	0.0165	1982000	45.45
6	2.025	0.4889	0.0172	1980000	45.42
7	4.089	0.7479	0.0182	1979000	45.39
8	5.128	0.8766	0.0190	1978000	45.36
9	6.171	1.0024	0.0196	1977000	45.34
10	7.191	1.1214	0.0203	1975000	45.31
11	8.228	1.2476	0.0211	1974000	45.30
12	9.256	1.3681	0.0219	1972000	45.25
13	10.285	1.4742	0.0225	1972000	45.25
14	11.325	1.5767	0.0253	1969000	45.18
15	12.362	1.6492	0.0278	2001000	45.92
16	13.387	1.7290	0.0304	1997000	45.86
17	14.402	1.8057	0.0333	1996000	45.83
18	15.441	1.8743	0.0364	1991000	45.73
19	15.947	1.9051	0.0394	1990000	45.71
20	16.475	1.9220	0.0466	1985000	45.59
21	16.964	1.9206	0.0609	2002000	45.99
22	17.466	1.9274	0.0727	1979000	45.47
23	17.972	1.9459	0.0798	1971000	45.31
24	18.490	1.9539	0.0888	1966000	45.20
25	19.003	1.9589	0.0985	1961000	45.08
26	19.492	1.9498	0.1125	1954000	44.92
27	19.988	1.9036	0.1340	1946000	44.74
28	20.470	1.8816	0.1463	1938000	44.55
29	21.431	1.7550	0.1952	1918000	44.10
30	22.328	1.5200	0.2414	1898000	43.63
31	23.225	1.2213	0.2562	1885000	43.34
32	24.202	1.1262	0.2547	1879000	43.20
33	25.224	1.1206	0.2698	1864000	42.85

Table 11: Case **c009**

Run Nr.	$\alpha$ [deg]	$C_l$ [-]	$C_d$ [-]	Re [-]	$U_\infty$ [m/s]
1	-6.238	-0.5638	0.0151	1980000	45.46
2	-5.212	-0.4391	0.0153	1981000	45.50
3	-4.180	-0.3095	0.0161	1983000	45.54
4	-2.123	-0.0465	0.0168	1983000	45.54
5	-0.043	0.2210	0.0175	1983000	45.53
6	2.015	0.4672	0.0184	1981000	45.51
7	4.085	0.7226	0.0197	1980000	45.48
8	5.119	0.8453	0.0206	1978000	45.44
9	6.161	0.9656	0.0212	1978000	45.43
10	7.180	1.0787	0.0221	1976000	45.40
11	8.215	1.1985	0.0230	1975000	45.38
12	9.241	1.3126	0.0240	1972000	45.33
13	10.265	1.4122	0.0245	1972000	45.32
14	11.306	1.5184	0.0263	1969000	45.25
15	12.356	1.5931	0.0287	2000000	45.97
16	13.369	1.6585	0.0313	1996000	45.89
17	14.396	1.7179	0.0341	1995000	45.87
18	15.420	1.7667	0.0370	1991000	45.79
19	15.912	1.7542	0.0539	1970000	45.31
20	16.431	1.7488	0.0704	1973000	45.40
21	16.932	1.7831	0.0692	1974000	45.44
22	17.442	1.8009	0.0740	1972000	45.40
23	17.955	1.8245	0.0778	1968000	45.32
24	18.468	1.8390	0.0843	1965000	45.22
25	18.973	1.8455	0.0926	1961000	45.15
26	19.464	1.8369	0.1061	1956000	45.03
27	19.968	1.8089	0.1250	1948000	44.84
28	20.431	1.7642	0.1468	1938000	44.62
29	21.403	1.6685	0.1877	1919000	44.18
30	22.320	1.4953	0.2348	1897000	43.67
31	23.251	1.3146	0.2584	1881000	43.31
32	24.213	1.1721	0.2561	1990000	45.84
33	25.219	1.1185	0.2687	1978000	45.59

Table 12: Case **c010**

Run Nr.	$\alpha$ [deg]	$C_l$ [-]	$C_d$ [-]	Re [-]	$U_\infty$ [m/s]
1	-4.181	-0.3011	0.0150	1980000	45.09
2	-2.111	-0.0385	0.0154	1980000	45.11
3	-0.048	0.2167	0.0162	1979000	45.10
4	2.010	0.4600	0.0174	1978000	45.08
5	4.081	0.7058	0.0189	1976000	45.04
6	5.115	0.8232	0.0198	1975000	45.02
7	6.157	0.9350	0.0208	1973000	44.99
8	7.176	1.0406	0.0219	1972000	44.98
9	8.206	1.1516	0.0232	1970000	44.94
10	9.238	1.2582	0.0245	2000000	45.64
11	10.253	1.3464	0.0257	1998000	45.60
12	11.297	1.4524	0.0273	1996000	45.57
13	12.343	1.5342	0.0293	1993000	45.50
14	13.353	1.6020	0.0321	1990000	45.44
15	14.364	1.6585	0.0343	1983000	45.30
16	15.391	1.7050	0.0362	1978000	45.19
17	15.900	1.7243	0.0371	1972000	45.07
18	16.426	1.7397	0.0377	2000000	45.74
19	16.917	1.7611	0.0386	1993000	45.58
20	17.419	1.7668	0.0387	1984000	45.38
21	17.925	1.7792	0.0956	1973000	45.16
22	18.427	1.7704	0.1074	1993000	45.63
23	18.930	1.7508	0.1240	1980000	45.34
24	19.417	1.7609	0.1352	1970000	45.13
25	19.934	1.7714	0.1463	1995000	45.70
26	20.416	1.7790	0.1585	1986000	45.51
27	21.429	1.7864	0.1890	2001000	45.85
28	22.427	1.8079	0.2160	1980000	45.40
29	23.435	1.8269	0.2407	2000000	45.87

Table 13: Case **c011**

Run Nr.	$\alpha$ [deg]	$C_l$ [-]	$C_d$ [-]	Re [-]	$U_\infty$ [m/s]
1	-0.048	0.2431	0.0168	1984000	45.50
2	2.019	0.4967	0.0174	1982000	45.48
3	4.090	0.7558	0.0185	1980000	45.44
4	5.129	0.8819	0.0190	1979000	45.42
5	6.174	1.0042	0.0196	1977000	45.40
6	7.197	1.1216	0.0202	1977000	45.38
7	8.226	1.2458	0.0211	1975000	45.34
8	9.261	1.3650	0.0219	1973000	45.32
9	10.282	1.4675	0.0227	1972000	45.29
10	11.320	1.5785	0.0245	1970000	45.25
11	12.365	1.6725	0.0265	1998000	45.92
12	13.389	1.7608	0.0291	1996000	45.87
13	14.414	1.8399	0.0321	1992000	45.79
14	15.443	1.9016	0.0347	1987000	45.70
15	15.934	1.8811	0.0488	1978000	45.50
16	16.440	1.8610	0.0639	1985000	45.66
17	16.921	1.8478	0.0805	1973000	45.41
18	17.446	1.8555	0.0904	1969000	45.32
19	17.924	1.8471	0.1066	1996000	45.93
20	18.437	1.8536	0.1164	1984000	45.68
21	18.935	1.8300	0.1333	1977000	45.52
22	19.418	1.8106	0.1464	1970000	45.37
23	19.921	1.7778	0.1628	2001000	46.10
24	20.389	1.7452	0.1786	1992000	45.90
25	21.377	1.6566	0.2138	1976000	45.54
26	22.310	1.4676	0.2471	1997000	46.03

Table 14: Case **c012**

Run Nr.	$\alpha$ [deg]	$C_l$ [-]	$C_d$ [-]	Re [-]	$U_\infty$ [m/s]
1	-6.227	-0.5310	0.0252	1978000	44.92
2	-5.198	-0.4129	0.0155	1979000	44.94
3	-4.168	-0.2798	0.0154	1980000	44.95
4	-2.100	-0.0085	0.0157	1980000	44.97
5	-0.037	0.2611	0.0158	1980000	44.97
6	2.032	0.5189	0.0162	1978000	44.94
7	4.101	0.7881	0.0166	1977000	44.91
8	5.137	0.9192	0.0170	1975000	44.89
9	6.180	1.0481	0.0174	1974000	44.87
10	7.199	1.1607	0.0181	1973000	44.84
11	8.236	1.2770	0.0193	1972000	44.82
12	9.267	1.3948	0.0201	1969000	44.78
13	10.283	1.4925	0.0207	2001000	45.51
14	11.334	1.6130	0.0220	1998000	45.45
15	12.382	1.7134	0.0243	1996000	45.42
16	13.403	1.8055	0.0269	1993000	45.36
17	14.425	1.8844	0.0297	1990000	45.31
18	15.454	1.9407	0.0355	1985000	45.19
19	15.937	1.8888	0.0583	1974000	44.95
20	16.442	1.8290	0.0828	2000000	45.55
21	16.890	1.7117	0.1065	1990000	45.33
22	17.338	1.5567	0.1336	1980000	45.10
23	17.743	1.2483	0.1518	1971000	44.90
24	18.241	1.2134	0.1641	1968000	44.83
25	18.724	1.1121	0.1560	1963000	44.74
26	19.214	1.1001	0.1628	1959000	44.66
27	19.725	1.0652	0.1629	1954000	44.54
28	20.204	1.0635	0.1689	1948000	44.41
29	21.229	1.0970	0.1959	1937000	44.16
30	22.231	1.1466	0.2220	1921000	43.81
31	23.228	1.1796	0.2479	1905000	43.46
32	24.224	1.2044	0.2764	1994000	45.51
33	25.245	1.2430	0.3101	1971000	45.00

Table 15: Case **c013**

Run Nr.	$\alpha$ [deg]	$C_l$ [-]	$C_d$ [-]	Re [-]	$U_\infty$ [m/s]
1	-4.174	-0.2910	0.0175	1989000	45.73
2	-2.111	-0.0155	0.0154	1989000	45.74
3	-0.035	0.2483	0.0148	1988000	45.72
4	2.024	0.5019	0.0156	1987000	45.70
5	4.098	0.7646	0.0161	1985000	45.66
6	5.134	0.8933	0.0164	1984000	45.64
7	6.179	1.0166	0.0169	1982000	45.61
8	7.200	1.1371	0.0173	1981000	45.59
9	8.232	1.2641	0.0179	1980000	45.56
10	9.260	1.3835	0.0185	1978000	45.53
11	10.289	1.4874	0.0192	1977000	45.51
12	11.336	1.6065	0.0203	1974000	45.46
13	12.378	1.6982	0.0222	1972000	45.40
14	12.874	1.7375	0.0234	1969000	45.35
15	13.384	1.6902	0.0298	1979000	45.61
16	13.855	1.6431	0.0438	1973000	45.48
17	14.334	1.5557	0.0553	1969000	45.40
18	14.759	1.2422	0.0815	1962000	45.23
19	15.215	1.1324	0.0902	1956000	45.08
20	15.712	1.0993	0.0971	1951000	44.98
21	16.214	1.0789	0.1039	1947000	44.89
22	16.708	1.0594	0.1094	1943000	44.80
23	17.203	1.0430	0.1161	1939000	44.71

Table 16: Case **c014**

Run Nr.	$\alpha$ [deg]	$C_l$ [-]	$C_d$ [-]	Re [-]	$U_\infty$ [m/s]
1	-4.172	-0.2931	0.0135	1984000	46.02
2	-2.109	-0.0230	0.0138	1984000	46.03
3	-0.039	0.2466	0.0141	1984000	46.03
4	2.031	0.5082	0.0145	1982000	46.00
5	4.100	0.7758	0.0150	1980000	45.97
6	5.140	0.9059	0.0152	1979000	45.94
7	6.186	1.0309	0.0156	1978000	45.94
8	7.206	1.1529	0.0158	1976000	45.90
9	8.239	1.2801	0.0164	1976000	45.89
10	9.275	1.4020	0.0168	1973000	45.83
11	10.293	1.5054	0.0176	1973000	45.84
12	10.822	1.5662	0.0179	1971000	45.79
13	11.337	1.6262	0.0186	1970000	45.78
14	11.857	1.6775	0.0192	1999000	46.46
15	12.371	1.7148	0.0203	1999000	46.47
16	12.862	1.6773	0.0227	1989000	46.26
17	13.331	1.4897	0.0432	1972000	45.88
18	13.745	1.2347	0.0620	1968000	45.78
19	14.236	1.1812	0.0703	1961000	45.63
20	14.747	1.1461	0.0783	1956000	45.52
21	15.218	1.1122	0.0855	1952000	45.40
22	15.713	1.0859	0.0924	1947000	45.30
23	16.228	1.0668	0.0997	1943000	45.20
24	16.711	1.0513	0.1067	1938000	45.09
25	17.206	1.0377	0.1133	1934000	45.00
26	18.209	1.0308	0.1297	1924000	44.78
27	19.210	1.0482	0.1491	1913000	44.54

Table 17: Case **c015**

Run Nr.	$\alpha$ [deg]	$C_l$ [-]	$C_d$ [-]	Re [-]	$U_\infty$ [m/s]
1	-4.175	-0.3028	0.0150	1987000	45.52
2	-2.109	-0.0445	0.0157	1988000	45.54
3	-0.044	0.2136	0.0165	1987000	45.53
4	2.014	0.4497	0.0179	1986000	45.50
5	4.078	0.6924	0.0196	1984000	45.46
6	5.111	0.8064	0.0208	1983000	45.44
7	6.150	0.9160	0.0219	1981000	45.41
8	7.170	1.0173	0.0232	1980000	45.39
9	8.203	1.1241	0.0248	1978000	45.35
10	9.230	1.2244	0.0265	1977000	45.33
11	10.247	1.3077	0.0280	1975000	45.30
12	11.286	1.4065	0.0300	1973000	45.26
13	12.329	1.4907	0.0320	1970000	45.20
14	13.345	1.5685	0.0339	1999000	45.87
15	14.358	1.6333	0.0361	1992000	45.72
16	15.387	1.6859	0.0380	1986000	45.60
17	15.892	1.7032	0.0388	1981000	45.49
18	16.406	1.7156	0.0395	1977000	45.41
19	16.901	1.7285	0.0823	1968000	45.20
20	17.407	1.7156	0.0952	1989000	45.71
21	17.894	1.6980	0.1111	1974000	45.36
22	18.399	1.7025	0.1227	1997000	45.90
23	18.907	1.7082	0.1352	1986000	45.66
24	19.400	1.7238	0.1446	1979000	45.50
25	19.916	1.7343	0.1564	2003000	46.08
26	20.395	1.7434	0.1682	1993000	45.86
27	21.415	1.7577	0.1961	1978000	45.52
28	22.414	1.7811	0.2222	1990000	45.81
29	23.419	1.8088	0.2419	1986000	45.74
30	24.420	1.8100	0.2628	1975000	45.51
31	25.411	1.7301	0.2847	1974000	45.48

Table 18: Case **c016**

Run Nr.	$\alpha$ [deg]	$C_l$ [-]	$C_d$ [-]	Re [-]	$U_\infty$ [m/s]
1	-0.053	0.2109	0.0182	1981000	45.25
2	0.985	0.3398	0.0186	1980000	45.24
3	2.013	0.4559	0.0195	1978000	45.22
4	3.051	0.5848	0.0200	1977000	45.22
5	4.078	0.7081	0.0211	1975000	45.18
6	5.116	0.8294	0.0219	1974000	45.18
7	6.156	0.9454	0.0232	1971000	45.14
8	7.174	1.0558	0.0241	2001000	45.83
9	8.208	1.1719	0.0257	1998000	45.78
10	9.238	1.2822	0.0268	1997000	45.77
11	10.259	1.3730	0.0284	1994000	45.71
12	10.780	1.4253	0.0290	1993000	45.71
13	11.296	1.4792	0.0301	1990000	45.65
14	11.819	1.5279	0.0307	1989000	45.64
15	12.329	1.5672	0.0317	1986000	45.59
16	12.837	1.6125	0.0325	1985000	45.57
17	13.370	1.6538	0.0336	1981000	45.50
18	13.864	1.6897	0.0343	1980000	45.48
19	14.385	1.7262	0.0355	1975000	45.37
20	15.409	1.7768	0.0372	2001000	45.98
21	16.429	1.7888	0.0625	1986000	45.65
22	17.427	1.8003	0.0802	1977000	45.43
23	18.426	1.7954	0.1080	2004000	46.09
24	19.404	1.7717	0.1383	1993000	45.84
25	20.413	1.7291	0.1669	1974000	45.42
26	21.372	1.6572	0.2005	1956000	45.00
27	22.360	1.5860	0.2305	1943000	44.71
28	23.225	1.2647	0.2642	1936000	44.55
29	24.201	1.1189	0.2600	1927000	44.35
30	25.210	1.0800	0.2678	1914000	44.06
31	26.202	1.0946	0.2987	1898000	43.69
32	27.211	1.1520	0.3400	1878000	43.23
33	28.211	1.2230	0.3842	1851000	42.63
34	29.217	1.2447	0.4191	1830000	42.15
35	30.230	1.2413	0.4480	1988000	45.81

Table 19: Case **c017**

Run Nr.	$\alpha$ [deg]	$C_l$ [-]	$C_d$ [-]	Re [-]	$U_\infty$ [m/s]
1	-6.239	-0.5528	0.0368	1987000	45.28
2	-5.201	-0.4277	0.0228	1986000	45.27
3	-4.176	-0.2997	0.0185	1987000	45.27
4	-2.105	-0.0342	0.0178	1986000	45.27
5	-0.036	0.2332	0.0177	1986000	45.26
6	2.021	0.4838	0.0186	1985000	45.24
7	4.092	0.7432	0.0198	1983000	45.20
8	5.127	0.8696	0.0205	1982000	45.18
9	6.169	0.9921	0.0214	1980000	45.15
10	7.192	1.1079	0.0223	1979000	45.13
11	8.228	1.2308	0.0234	1977000	45.10
12	9.259	1.3474	0.0244	1976000	45.07
13	10.279	1.4460	0.0255	1975000	45.04
14	11.327	1.5652	0.0269	1973000	45.00
15	12.375	1.6677	0.0283	1971000	44.96
16	13.393	1.7657	0.0298	1999000	45.63
17	14.413	1.8493	0.0317	1995000	45.55
18	15.431	1.8605	0.0439	1989000	45.42
19	15.798	1.4321	0.1148	1998000	45.63
20	16.256	1.2650	0.1413	1987000	45.40
21	16.729	1.1861	0.1522	1981000	45.26
22	17.204	1.1159	0.1573	1978000	45.20
23	17.700	1.0953	0.1616	1974000	45.11
24	18.208	1.0648	0.1531	1970000	45.01
25	18.718	1.0913	0.1687	1967000	44.94
26	19.213	1.1077	0.1769	1962000	44.83
27	19.728	1.0995	0.1821	1958000	44.76
28	20.216	1.0965	0.1869	1953000	44.66
29	21.234	1.1238	0.2078	1941000	44.40
30	22.232	1.1418	0.2276	1928000	44.09
31	23.222	1.1616	0.2509	1988000	45.48
32	24.222	1.1779	0.2739	1970000	45.08
33	25.242	1.1899	0.3000	1952000	44.68

Table 20: Case **c018**

Run Nr.	$\alpha$ [deg]	$C_l$ [-]	$C_d$ [-]	Re [-]	$U_\infty$ [m/s]
1	-4.177	-0.3079	0.0192	1986000	45.55
2	-2.115	-0.0388	0.0176	1986000	45.55
3	-0.043	0.2257	0.0170	1985000	45.55
4	2.022	0.4784	0.0177	1984000	45.52
5	4.089	0.7366	0.0185	1982000	45.48
6	5.128	0.8619	0.0192	1980000	45.46
7	6.170	0.9835	0.0199	1979000	45.44
8	7.189	1.0984	0.0208	1978000	45.42
9	8.229	1.2206	0.0217	1976000	45.39
10	9.252	1.3366	0.0226	1975000	45.36
11	10.276	1.4343	0.0236	1973000	45.33
12	11.319	1.5491	0.0249	1971000	45.29
13	12.369	1.6451	0.0261	2001000	45.98
14	13.168	0.9669	0.1030	1990000	45.77
15	13.672	0.9523	0.1069	1987000	45.70
16	14.169	0.9575	0.1112	1983000	45.62
17	14.669	0.9389	0.1130	1980000	45.54
18	15.169	0.9744	0.1225	1976000	45.46
19	15.677	0.9646	0.1247	1971000	45.35
20	16.183	0.9808	0.1321	1968000	45.28
21	16.688	0.9938	0.1367	1963000	45.19
22	17.186	0.9901	0.1403	1959000	45.10
23	17.692	1.0116	0.1475	1954000	44.99

Table 21: Case **c019**

Run Nr.	$\alpha$ [deg]	$C_l$ [-]	$C_d$ [-]	Re [-]	$U_\infty$ [m/s]
1	-4.175	-0.2946	0.0152	1988000	46.13
2	-2.112	-0.0220	0.0156	1988000	46.14
3	-0.043	0.2465	0.0160	1988000	46.14
4	2.026	0.5050	0.0166	1987000	46.11
5	4.094	0.7678	0.0175	1985000	46.08
6	5.133	0.8945	0.0180	1984000	46.05
7	6.179	1.0161	0.0189	1983000	46.04
8	7.198	1.1324	0.0196	1981000	46.00
9	8.233	1.2544	0.0205	1981000	45.99
10	9.257	1.3678	0.0215	1978000	45.94
11	10.284	1.4637	0.0227	1978000	45.94
12	10.805	1.5169	0.0233	1976000	45.89
13	11.322	1.5699	0.0242	1975000	45.88
14	11.651	0.9316	0.0848	1972000	45.83
15	12.164	0.9196	0.0871	1969000	45.76
16	12.651	0.9150	0.0910	1965000	45.68
17	13.171	0.9115	0.0957	1961000	45.59
18	13.660	0.9168	0.1004	1958000	45.52
19	14.166	0.9189	0.1045	1954000	45.43

Table 22: Case **c020**

Run Nr.	$\alpha$ [deg]	$C_l$ [-]	$C_d$ [-]	Re [-]	$U_\infty$ [m/s]
1	-6.235	-0.5539	0.0160	1983000	45.42
2	-5.207	-0.4303	0.0162	1985000	45.47
3	-4.178	-0.2981	0.0167	1985000	45.48
4	-2.117	-0.0291	0.0176	1985000	45.50
5	-0.036	0.2458	0.0183	1984000	45.48
6	2.026	0.5004	0.0196	1983000	45.46
7	4.096	0.7665	0.0208	1980000	45.41
8	5.130	0.8963	0.0215	1979000	45.40
9	6.173	1.0227	0.0223	1977000	45.36
10	7.193	1.1429	0.0232	1977000	45.36
11	8.230	1.2709	0.0240	1975000	45.31
12	9.266	1.3933	0.0251	1974000	45.30
13	10.283	1.4969	0.0259	1971000	45.25
14	11.328	1.6000	0.0284	2000000	45.93
15	12.364	1.6766	0.0313	1996000	45.85
16	13.378	1.7423	0.0344	1991000	45.74
17	14.368	1.6837	0.0618	1995000	45.85
18	15.385	1.7459	0.0752	1988000	45.70
19	15.892	1.7835	0.0816	1985000	45.62
20	16.403	1.8113	0.0899	1983000	45.59
21	16.893	1.8283	0.1019	1976000	45.42
22	17.407	1.8376	0.1131	1985000	45.65
23	17.901	1.8437	0.1261	1978000	45.49
24	18.415	1.8662	0.1327	1977000	45.49
25	18.921	1.8757	0.1383	1978000	45.50
26	19.392	1.8260	0.1502	1972000	45.36
27	19.861	1.6901	0.1714	1962000	45.15
28	20.324	1.6413	0.1884	1952000	44.92
29	21.372	1.6638	0.2214	1929000	44.40

Table 23: Case **c021**

Run Nr.	$\alpha$ [deg]	$C_l$ [-]	$C_d$ [-]	Re [-]	$U_\infty$ [m/s]
1	-4.179	-0.3046	0.0178	1991000	45.78
2	-2.117	-0.0317	0.0171	1991000	45.79
3	-0.044	0.2383	0.0167	1990000	45.77
4	2.018	0.4977	0.0175	1988000	45.75
5	4.093	0.7649	0.0181	1986000	45.71
6	5.129	0.8949	0.0187	1985000	45.69
7	6.174	1.0185	0.0192	1983000	45.66
8	7.191	1.1256	0.0203	1982000	45.64
9	8.226	1.2485	0.0218	1980000	45.60
10	9.250	1.3671	0.0229	1978000	45.57
11	10.273	1.4672	0.0240	1976000	45.54
12	11.320	1.5871	0.0257	1974000	45.49
13	12.367	1.6866	0.0281	1971000	45.45
14	12.861	1.7332	0.0298	1969000	45.41
15	13.394	1.7781	0.0314	1999000	46.11
16	13.893	1.8154	0.0331	1997000	46.08
17	14.411	1.8528	0.0350	1994000	46.02
18	14.940	1.8793	0.0366	1991000	45.97
19	15.431	1.9093	0.0381	1987000	45.89
20	15.930	1.9034	0.0382	1983000	45.80
21	16.427	1.8570	0.0542	1996000	46.11
22	16.844	1.6254	0.0967	1979000	45.71
23	17.276	1.4218	0.1299	1966000	45.41
24	17.759	1.3301	0.1530	1957000	45.20
25	18.246	1.2596	0.1600	1953000	45.11
26	18.736	1.1985	0.1686	1949000	45.03
27	19.216	1.1478	0.1688	1945000	44.95
28	20.227	1.1360	0.1814	1935000	44.72
29	21.214	1.1056	0.1909	1925000	44.48
30	22.223	1.1249	0.2160	1914000	44.25
31	23.225	1.1696	0.2418	1896000	43.85

Table 24: Case **c022**

Run Nr.	$\alpha$ [deg]	$C_l$ [-]	$C_d$ [-]	Re [-]	$U_\infty$ [m/s]
1	-4.179	-0.3006	0.0155	1984000	45.59
2	-2.098	-0.0185	0.0152	1983000	45.60
3	-0.041	0.2478	0.0159	1981000	45.59
4	2.029	0.5009	0.0168	1979000	45.56
5	4.097	0.7678	0.0179	1976000	45.53
6	5.133	0.8977	0.0183	1974000	45.50
7	6.176	1.0229	0.0190	1973000	45.48
8	7.196	1.1445	0.0195	1971000	45.45
9	8.232	1.2727	0.0202	2002000	46.18
10	9.268	1.3951	0.0210	1999000	46.14
11	10.285	1.4990	0.0218	1998000	46.12
12	11.337	1.6221	0.0230	1994000	46.06
13	12.383	1.7173	0.0254	1992000	46.03
14	12.873	1.7624	0.0267	1989000	45.98
15	13.407	1.8055	0.0284	1988000	45.97
16	13.917	1.8440	0.0299	1986000	45.92
17	14.413	1.8257	0.0339	1997000	46.20
18	14.889	1.6796	0.0673	1984000	45.91
19	15.237	1.2224	0.0928	1975000	45.70
20	15.708	1.1219	0.0997	1969000	45.55
21	16.225	1.1094	0.1081	1965000	45.47
22	16.699	1.0648	0.1112	1960000	45.37
23	17.203	1.0535	0.1184	1957000	45.29
24	17.702	1.0358	0.1234	1952000	45.19
25	18.209	1.0263	0.1294	1947000	45.08
26	18.714	1.0281	0.1377	1942000	44.98
27	19.204	1.0314	0.1472	1936000	44.85
28	20.221	1.0770	0.1722	1924000	44.57
29	21.215	1.1120	0.1963	2023000	46.89
30	22.225	1.1533	0.2203	2006000	46.51
31	23.227	1.1935	0.2473	1988000	46.10
32	24.222	1.1974	0.2702	1972000	45.75
33	25.241	1.2205	0.2997	1952000	45.29

Table 25: Case **c023**

Run Nr.	$\alpha$ [deg]	$C_l$ [-]	$C_d$ [-]	Re [-]	$U_\infty$ [m/s]
1	-4.169	-0.2941	0.0144	2000000	46.16
2	-2.114	-0.0240	0.0147	2000000	46.17
3	-0.040	0.2478	0.0155	2000000	46.17
4	2.027	0.5114	0.0160	1998000	46.13
5	4.103	0.7799	0.0170	1996000	46.11
6	5.139	0.9105	0.0172	1994000	46.07
7	6.182	1.0374	0.0179	1993000	46.06
8	7.206	1.1590	0.0183	1991000	46.03
9	8.239	1.2879	0.0189	1991000	46.01
10	9.275	1.4117	0.0195	1988000	45.97
11	10.292	1.5167	0.0202	1988000	45.97
12	11.337	1.6400	0.0213	1984000	45.90
13	12.387	1.7343	0.0234	1983000	45.89
14	12.880	1.7764	0.0249	1980000	45.83
15	13.412	1.8136	0.0267	1980000	45.84
16	13.737	1.2266	0.0624	2005000	46.43
17	14.226	1.1855	0.0703	2004000	46.41
18	14.735	1.1455	0.0780	2001000	46.35
19	15.206	1.1149	0.0844	2000000	46.32
20	15.703	1.0884	0.0912	1997000	46.27

Table 26: Case **c024**

Run Nr.	$\alpha$ [deg]	$C_l$ [-]	$C_d$ [-]	Re [-]	$U_\infty$ [m/s]
1	-6.246	-0.5687	0.0168	1984000	45.25
2	-5.211	-0.4426	0.0167	1986000	45.31
3	-4.178	-0.3111	0.0174	1986000	45.32
4	-2.111	-0.0443	0.0186	1986000	45.33
5	-0.040	0.2253	0.0196	1985000	45.31
6	2.019	0.4776	0.0214	1986000	45.37
7	4.082	0.7336	0.0231	1983000	45.31
8	5.120	0.8592	0.0243	1982000	45.30
9	6.165	0.9804	0.0255	1980000	45.26
10	7.184	1.0962	0.0268	1979000	45.25
11	8.216	1.2176	0.0281	1976000	45.20
12	9.250	1.3346	0.0298	1975000	45.18
13	10.266	1.4337	0.0314	1973000	45.13
14	11.309	1.5519	0.0334	1971000	45.11
15	12.360	1.6552	0.0355	1998000	45.75
16	13.379	1.7418	0.0377	1995000	45.69
17	14.357	1.6772	0.0623	1999000	45.79
18	15.379	1.7346	0.0778	1991000	45.61
19	15.888	1.7701	0.0848	1987000	45.53
20	16.410	1.7990	0.0928	1986000	45.50
21	16.893	1.8120	0.1042	1980000	45.36
22	17.398	1.8177	0.1166	1990000	45.62
23	17.905	1.8335	0.1247	1987000	45.55
24	18.410	1.8402	0.1333	1985000	45.51
25	18.918	1.8503	0.1374	1985000	45.51
26	19.365	1.7306	0.1547	1976000	45.31
27	19.810	1.5309	0.1795	1961000	44.97
28	20.278	1.4829	0.1959	1952000	44.77
29	21.254	1.3910	0.2239	1927000	44.20

Table 27: Case **c025**

Run Nr.	$\alpha$ [deg]	$C_l$ [-]	$C_d$ [-]	Re [-]	$U_\infty$ [m/s]
1	-4.178	-0.3163	0.0196	1988000	45.47
2	-2.117	-0.0478	0.0193	1987000	45.47
3	-0.052	0.2156	0.0201	1986000	45.46
4	2.011	0.4692	0.0212	1984000	45.42
5	4.085	0.7286	0.0229	1981000	45.38
6	5.120	0.8537	0.0238	1979000	45.36
7	6.165	0.9739	0.0247	1977000	45.33
8	7.184	1.0897	0.0256	1976000	45.30
9	8.215	1.2118	0.0268	1974000	45.27
10	9.242	1.3275	0.0283	1972000	45.24
11	10.269	1.4270	0.0294	1970000	45.21
12	11.313	1.5467	0.0312	1998000	45.88
13	12.360	1.6500	0.0329	1995000	45.84
14	12.858	1.7001	0.0337	1993000	45.80
15	13.392	1.7479	0.0347	1991000	45.78
16	13.884	1.7875	0.0357	1989000	45.73
17	14.405	1.8259	0.0369	1986000	45.67
18	14.924	1.8530	0.0378	1982000	45.61
19	15.404	1.8238	0.0443	1977000	45.50
20	15.869	1.6864	0.0682	2002000	46.08
21	16.288	1.3934	0.1253	1982000	45.64
22	16.756	1.3025	0.1479	1973000	45.42
23	17.225	1.2249	0.1579	1969000	45.34
24	17.731	1.2387	0.1690	1965000	45.24
25	18.230	1.1927	0.1679	1961000	45.15
26	18.736	1.1918	0.1753	1958000	45.08
27	19.207	1.0930	0.1593	1952000	44.95
28	20.218	1.0710	0.1704	1943000	44.75
29	21.202	1.0500	0.1837	1935000	44.57
30	22.215	1.0998	0.2147	1923000	44.32
31	23.209	1.1438	0.2433	1905000	43.91
32	24.215	1.1789	0.2741	1984000	45.75

Table 28: Case **c026**

Run Nr.	$\alpha$ [deg]	$C_l$ [-]	$C_d$ [-]	Re [-]	$U_\infty$ [m/s]
1	-4.176	-0.3143	0.0176	1987000	45.99
2	-2.111	-0.0431	0.0178	1986000	46.00
3	-0.052	0.2224	0.0185	1986000	45.99
4	2.018	0.4803	0.0196	1984000	45.96
5	4.089	0.7409	0.0210	1982000	45.92
6	5.127	0.8678	0.0218	1980000	45.89
7	6.169	0.9903	0.0226	1979000	45.88
8	7.189	1.1064	0.0233	1977000	45.84
9	8.224	1.2289	0.0244	1976000	45.83
10	9.259	1.3454	0.0255	1974000	45.78
11	10.275	1.4433	0.0266	1973000	45.77
12	11.325	1.5624	0.0282	1970000	45.71
13	12.374	1.6657	0.0297	1999000	46.41
14	12.865	1.7167	0.0306	1996000	46.36
15	13.400	1.7661	0.0316	1995000	46.35
16	13.680	1.1088	0.1023	1997000	46.41
17	14.154	1.0010	0.1182	1997000	46.41
18	14.683	0.9652	0.1179	1977000	45.96
19	15.170	0.9705	0.1217	1973000	45.87
20	15.673	0.9675	0.1251	1970000	45.80
21	16.179	0.9642	0.1274	1966000	45.73
22	16.685	0.9787	0.1316	1962000	45.63
23	17.184	0.9775	0.1357	1958000	45.55
24	17.689	0.9842	0.1400	1953000	45.45
25	18.200	1.0060	0.1479	1948000	45.34
26	18.709	1.0267	0.1561	1944000	45.23

Table 29: Case **c027**

Run Nr.	$\alpha$ [deg]	$C_l$ [-]	$C_d$ [-]	Re [-]	$U_\infty$ [m/s]
1	-4.175	-0.3075	0.0165	1990000	46.13
2	-2.113	-0.0347	0.0170	1990000	46.13
3	-0.039	0.2334	0.0179	1990000	46.13
4	2.026	0.4918	0.0187	1988000	46.09
5	4.094	0.7534	0.0198	1986000	46.06
6	5.133	0.8806	0.0204	1985000	46.03
7	6.177	1.0020	0.0213	1984000	46.02
8	7.198	1.1186	0.0220	1982000	45.99
9	8.230	1.2404	0.0230	1982000	45.97
10	9.257	1.3547	0.0242	1980000	45.93
11	10.284	1.4519	0.0254	1979000	45.93
12	10.805	1.5079	0.0262	1977000	45.89
13	11.327	1.5660	0.0272	1977000	45.89
14	11.847	1.6184	0.0282	1975000	45.84
15	12.358	1.6604	0.0292	1975000	45.85
16	12.878	1.7112	0.0304	1972000	45.79
17	13.172	0.9243	0.0961	1995000	46.33
18	13.663	0.9399	0.1024	1991000	46.26
19	14.168	0.9332	0.1057	1987000	46.17
20	14.685	0.9338	0.1099	1984000	46.10
21	15.170	0.9385	0.1137	1980000	46.01
22	15.677	0.9407	0.1173	1976000	45.93
23	16.181	0.9543	0.1238	1972000	45.85

Table 30: Case **c028**

Run Nr.	$\alpha$ [deg]	$C_l$ [-]	$C_d$ [-]	Re [-]	$U_\infty$ [m/s]
1	-0.042	0.2424	0.0153	2013000	48.27
2	0.990	0.3735	0.0155	2013000	48.28
3	2.031	0.4973	0.0160	2012000	48.26
4	3.067	0.6310	0.0162	2011000	48.26
5	4.085	0.7606	0.0167	2010000	48.23
6	5.128	0.8897	0.0171	2009000	48.21
7	6.177	1.0125	0.0177	2007000	48.18
8	7.201	1.1323	0.0180	2007000	48.18
9	8.234	1.2588	0.0188	2005000	48.13
10	9.266	1.3793	0.0196	2004000	48.12
11	10.295	1.4836	0.0202	2002000	48.08
12	11.331	1.5929	0.0223	2001000	48.06
13	12.376	1.6818	0.0249	2000000	48.02
14	13.395	1.7634	0.0275	1998000	47.99
15	14.424	1.8340	0.0309	1995000	47.91
16	15.446	1.8783	0.0411	1992000	47.84
17	15.904	1.7596	0.0747	1996000	47.95
18	16.408	1.7385	0.0927	1977000	47.51
19	16.887	1.7359	0.1078	2006000	48.20
20	17.387	1.7493	0.1172	2000000	48.08
21	17.884	1.7401	0.1234	1997000	48.02
22	18.368	1.6803	0.1383	1992000	47.90
23	18.853	1.6157	0.1482	1984000	47.70
24	19.339	1.6111	0.1614	1976000	47.51
25	19.822	1.5045	0.1785	2002000	48.14
26	20.310	1.5106	0.1954	1989000	47.85

Table 31: Case **c029**

Run Nr.	$\alpha$ [deg]	$C_l$ [-]	$C_d$ [-]	Re [-]	$U_\infty$ [m/s]
1	-4.176	-0.2946	0.0153	1984000	45.34
2	-2.119	-0.0269	0.0158	1985000	45.36
3	-0.048	0.2358	0.0160	1984000	45.36
4	2.017	0.4900	0.0166	1983000	45.34
5	4.087	0.7495	0.0175	1981000	45.30
6	5.129	0.8758	0.0180	1980000	45.28
7	6.171	0.9967	0.0184	1979000	45.25
8	7.190	1.1141	0.0192	1978000	45.25
9	8.222	1.2383	0.0199	1976000	45.21
10	9.250	1.3562	0.0207	1975000	45.19
11	10.274	1.4589	0.0213	1974000	45.16
12	11.324	1.5749	0.0226	1972000	45.13
13	12.366	1.6695	0.0248	2000000	45.77
14	13.386	1.7597	0.0276	1998000	45.73
15	13.901	1.8002	0.0291	1995000	45.69
16	14.412	1.8414	0.0308	1995000	45.68
17	14.944	1.8765	0.0323	1993000	45.65
18	15.433	1.9132	0.0338	1992000	45.64
19	15.954	1.9478	0.0354	1989000	45.58
20	16.473	1.9737	0.0365	1989000	45.59
21	16.979	2.0044	0.0382	1985000	45.49
22	17.493	2.0223	0.0427	1984000	45.49
23	17.995	2.0361	0.0465	1978000	45.35
24	18.504	2.0248	0.0623	1984000	45.52
25	19.014	2.0035	0.0793	1973000	45.26
26	19.498	1.9827	0.0959	1998000	45.84
27	19.987	1.9142	0.1192	1985000	45.55
28	20.446	1.8448	0.1473	1972000	45.26
29	20.915	1.7674	0.1669	1997000	45.84
30	21.394	1.7212	0.1921	1986000	45.58
31	21.829	1.5634	0.2191	1972000	45.29
32	22.288	1.4546	0.2388	2007000	46.09

Table 32: Case **c030**

Run Nr.	$\alpha$ [deg]	$C_l$ [-]	$C_d$ [-]	Re [-]	$U_\infty$ [m/s]
1	-4.178	-0.3005	0.0163	1986000	45.46
2	-2.121	-0.0364	0.0167	1986000	45.48
3	-0.050	0.2241	0.0171	1985000	45.47
4	2.014	0.4758	0.0180	1985000	45.45
5	4.083	0.7306	0.0190	1982000	45.40
6	5.122	0.8560	0.0200	1982000	45.39
7	6.167	0.9758	0.0206	1980000	45.36
8	7.189	1.0899	0.0214	1979000	45.35
9	8.221	1.2114	0.0222	1977000	45.30
10	9.251	1.3274	0.0233	1976000	45.29
11	10.271	1.4268	0.0241	1974000	45.25
12	11.317	1.5393	0.0258	1973000	45.22
13	12.358	1.6309	0.0282	2000000	45.87
14	13.380	1.7214	0.0313	1998000	45.83
15	13.892	1.7637	0.0327	1995000	45.77
16	14.403	1.8051	0.0344	1994000	45.76
17	14.933	1.8366	0.0363	1992000	45.70
18	15.413	1.8362	0.0433	1985000	45.56
19	15.901	1.7949	0.0631	1969000	45.18
20	16.406	1.7866	0.0793	1978000	45.39
21	16.903	1.8182	0.0859	1973000	45.30
22	17.416	1.8305	0.0956	1971000	45.24
23	17.912	1.8458	0.1044	2002000	45.96
24	18.414	1.8465	0.1157	1997000	45.85
25	18.921	1.8360	0.1253	1994000	45.79
26	19.388	1.7866	0.1409	1985000	45.59
27	19.889	1.7551	0.1567	1978000	45.44
28	20.360	1.7174	0.1691	2004000	46.04
29	20.840	1.6697	0.1875	1993000	45.79
30	21.319	1.5992	0.2089	1983000	45.57

Table 33: Case **c031**

Run Nr.	$\alpha$ [deg]	$C_l$ [-]	$C_d$ [-]	Re [-]	$U_\infty$ [m/s]
1	-0.047	0.2312	0.0170	1999000	48.00
2	0.983	0.3629	0.0174	1999000	48.01
3	2.022	0.4848	0.0178	1998000	47.99
4	3.060	0.6169	0.0184	1997000	47.97
5	4.083	0.7455	0.0190	1996000	47.95
6	5.125	0.8718	0.0197	1995000	47.93
7	6.175	0.9931	0.0205	1995000	47.94
8	7.194	1.1086	0.0213	1994000	47.92
9	8.230	1.2328	0.0222	1992000	47.89
10	9.261	1.3479	0.0231	1991000	47.86
11	10.290	1.4483	0.0240	1989000	47.82
12	11.328	1.5579	0.0258	1986000	47.77
13	12.372	1.6558	0.0281	1984000	47.72
14	13.390	1.7367	0.0310	1981000	47.65
15	14.417	1.8060	0.0385	1976000	47.54
16	15.436	1.8441	0.0479	1968000	47.36
17	15.937	1.8386	0.0572	1992000	47.94
18	16.444	1.8280	0.0705	1983000	47.74
19	16.916	1.8113	0.0872	1974000	47.52
20	17.439	1.8170	0.1001	1984000	47.79
21	17.914	1.8118	0.1147	1977000	47.63
22	18.422	1.8066	0.1238	1972000	47.50
23	18.921	1.7840	0.1392	1999000	48.18
24	19.407	1.7766	0.1491	1992000	48.04
25	19.896	1.7116	0.1701	1985000	47.86
26	20.380	1.7061	0.1804	1978000	47.71

Table 34: Case **c032**

Run Nr.	$\alpha$ [deg]	$C_l$ [-]	$C_d$ [-]	Re [-]	$U_\infty$ [m/s]
1	-0.057	0.2186	0.0195	2023000	48.51
2	0.982	0.3500	0.0201	2022000	48.51
3	2.018	0.4713	0.0208	2021000	48.49
4	3.058	0.6018	0.0218	2020000	48.48
5	4.079	0.7287	0.0227	2018000	48.44
6	5.121	0.8534	0.0238	2017000	48.43
7	6.170	0.9744	0.0247	2016000	48.39
8	7.189	1.0882	0.0259	2015000	48.38
9	8.221	1.2103	0.0270	2013000	48.33
10	9.256	1.3261	0.0285	2012000	48.32
11	10.281	1.4290	0.0296	2010000	48.27
12	11.319	1.5391	0.0318	2008000	48.25
13	12.367	1.6371	0.0341	2005000	48.18
14	13.385	1.7159	0.0369	2003000	48.14
15	14.411	1.7768	0.0397	2000000	48.08
16	15.408	1.7418	0.0628	1983000	47.66
17	15.895	1.7248	0.0782	1971000	47.39
18	16.406	1.7330	0.0903	1998000	48.05
19	16.891	1.7480	0.0992	1994000	47.96
20	17.388	1.7465	0.1127	1972000	47.45
21	17.890	1.7466	0.1229	1967000	47.34
22	18.394	1.7412	0.1317	1998000	48.08
23	18.901	1.7332	0.1376	1995000	48.01

Table 35: Case **c033**

Run Nr.	$\alpha$ [deg]	$C_l$ [-]	$C_d$ [-]	Re [-]	$U_\infty$ [m/s]
1	-0.053	0.2367	0.0159	2009000	48.55
2	0.990	0.3707	0.0162	2009000	48.55
3	2.031	0.4948	0.0165	2007000	48.53
4	3.063	0.6270	0.0168	2007000	48.52
5	4.092	0.7572	0.0175	2005000	48.49
6	5.131	0.8843	0.0180	2004000	48.48
7	6.177	1.0078	0.0185	2003000	48.45
8	7.197	1.1240	0.0191	2002000	48.44
9	8.230	1.2489	0.0199	2000000	48.40
10	9.265	1.3676	0.0207	1999000	48.37
11	10.297	1.4702	0.0214	1997000	48.33
12	11.329	1.5782	0.0228	1995000	48.29
13	12.376	1.6749	0.0254	1992000	48.23
14	13.394	1.7578	0.0281	1990000	48.18
15	14.417	1.8240	0.0362	1986000	48.10
16	15.402	1.7404	0.0686	1977000	47.91
17	15.901	1.7414	0.0803	1970000	47.74
18	16.412	1.7507	0.0922	2002000	48.52
19	16.897	1.7807	0.1012	1996000	48.37
20	17.405	1.7837	0.1148	1992000	48.28
21	17.903	1.7939	0.1232	1989000	48.22
22	18.413	1.7860	0.1328	1983000	48.07
23	18.911	1.7731	0.1453	1972000	47.83
24	19.400	1.7541	0.1605	2026000	49.15

Table 36: Case **c034**

Run Nr.	$\alpha$ [deg]	$C_l$ [-]	$C_d$ [-]	Re [-]	$U_\infty$ [m/s]
1	-0.050	0.2346	0.0173	2006000	48.58
2	0.988	0.3678	0.0175	2005000	48.57
3	2.026	0.4908	0.0180	2004000	48.55
4	3.062	0.6236	0.0186	2003000	48.53
5	4.091	0.7541	0.0192	2002000	48.51
6	5.130	0.8810	0.0199	2001000	48.49
7	6.172	1.0041	0.0206	1999000	48.47
8	7.196	1.1214	0.0213	1998000	48.45
9	8.229	1.2474	0.0222	1997000	48.42
10	9.264	1.3682	0.0231	1995000	48.39
11	10.293	1.4721	0.0241	1994000	48.37
12	11.329	1.5865	0.0261	1992000	48.32
13	12.376	1.6881	0.0286	1989000	48.27
14	13.396	1.7773	0.0314	1987000	48.23
15	14.422	1.8598	0.0356	1983000	48.14
16	15.452	1.9249	0.0416	1979000	48.03
17	15.942	1.8978	0.0546	1968000	47.78
18	16.457	1.8862	0.0697	1977000	48.01
19	16.926	1.8709	0.0866	2003000	48.67
20	17.435	1.8794	0.0986	1997000	48.51
21	17.926	1.8764	0.1108	1991000	48.38
22	18.427	1.8664	0.1217	1987000	48.28
23	18.921	1.8435	0.1363	1984000	48.20
24	19.387	1.7792	0.1510	1974000	47.97
25	19.879	1.7181	0.1701	2002000	48.65

Table 37: Case **c035**

Run Nr.	$\alpha$ [deg]	$C_l$ [-]	$C_d$ [-]	Re [-]	$U_\infty$ [m/s]
1	-0.051	0.2311	0.0174	2000000	48.57
2	0.988	0.3637	0.0180	2000000	48.57
3	2.021	0.4857	0.0184	1999000	48.55
4	3.061	0.6184	0.0189	1998000	48.53
5	4.093	0.7483	0.0196	1997000	48.51
6	5.129	0.8744	0.0203	1995000	48.49
7	6.174	0.9967	0.0211	1994000	48.46
8	7.194	1.1130	0.0220	1993000	48.44
9	8.227	1.2380	0.0230	1992000	48.41
10	9.262	1.3571	0.0240	1990000	48.38
11	10.287	1.4592	0.0250	1989000	48.35
12	11.330	1.5756	0.0271	1987000	48.31
13	12.377	1.6769	0.0297	1984000	48.25
14	13.397	1.7674	0.0327	1982000	48.21
15	14.419	1.8506	0.0363	1978000	48.12
16	15.444	1.8992	0.0445	1971000	47.96
17	15.941	1.8725	0.0601	1977000	48.10
18	16.445	1.8589	0.0769	2001000	48.71
19	16.917	1.8537	0.0913	1994000	48.55
20	17.425	1.8618	0.1027	1990000	48.44
21	17.918	1.8588	0.1140	1985000	48.33
22	18.411	1.8302	0.1293	1979000	48.19
23	18.910	1.8133	0.1429	1974000	48.06
24	19.381	1.7638	0.1549	1967000	47.88

Table 38: Case **c036**

Run Nr.	$\alpha$ [deg]	$C_l$ [-]	$C_d$ [-]	Re [-]	$U_\infty$ [m/s]
1	-6.238	-0.5530	0.0192	1983000	45.43
2	-5.202	-0.4271	0.0152	1985000	45.47
3	-4.173	-0.2941	0.0157	1986000	45.49
4	-2.104	-0.0235	0.0163	1986000	45.50
5	-0.033	0.2502	0.0170	1986000	45.50
6	2.025	0.5061	0.0178	1985000	45.47
7	4.093	0.7700	0.0189	1984000	45.44
8	5.133	0.8991	0.0195	1982000	45.41
9	6.176	1.0246	0.0200	1982000	45.40
10	7.196	1.1435	0.0208	1980000	45.37
11	8.232	1.2707	0.0215	1979000	45.35
12	9.268	1.3917	0.0224	1977000	45.31
13	10.285	1.4925	0.0233	1977000	45.30
14	11.321	1.5701	0.0255	1973000	45.23
15	12.365	1.6456	0.0284	1972000	45.20
16	13.380	1.7312	0.0321	2000000	45.87
17	14.407	1.8092	0.0360	1997000	45.81
18	15.429	1.8530	0.0454	1989000	45.64
19	15.924	1.8482	0.0531	1983000	45.50
20	16.448	1.8459	0.0644	1993000	45.74
21	16.917	1.8287	0.0801	1982000	45.49
22	17.423	1.8272	0.0929	1977000	45.36
23	17.909	1.8215	0.1057	1969000	45.19
24	18.416	1.7999	0.1207	1960000	44.98
25	18.908	1.7536	0.1401	1949000	44.72
26	19.393	1.7297	0.1516	1943000	44.61
27	19.874	1.6480	0.1743	1934000	44.40
28	20.317	1.5463	0.1932	1923000	44.15
29	21.313	1.4747	0.2240	1911000	43.87
30	22.247	1.2795	0.2373	1899000	43.60
31	23.240	1.2411	0.2512	1892000	43.42
32	24.202	1.1047	0.2446	1992000	45.73
33	25.218	1.1028	0.2675	1975000	45.37

Table 39: Case **c037**

Run Nr.	$\alpha$ [deg]	$C_l$ [-]	$C_d$ [-]	Re [-]	$U_\infty$ [m/s]
1	-4.186	-0.3022	0.0158	1987000	45.79
2	-2.107	-0.0343	0.0164	1987000	45.80
3	-0.043	0.2291	0.0168	1987000	45.79
4	2.020	0.4769	0.0176	1986000	45.77
5	4.087	0.7363	0.0185	1983000	45.73
6	5.118	0.8608	0.0192	1982000	45.71
7	6.167	0.9820	0.0198	1981000	45.68
8	7.186	1.0983	0.0205	1980000	45.67
9	8.218	1.2219	0.0211	1978000	45.64
10	9.253	1.3405	0.0221	1977000	45.62
11	10.274	1.4419	0.0228	1976000	45.58
12	11.317	1.5573	0.0245	1974000	45.55
13	12.365	1.6507	0.0266	1971000	45.50
14	13.386	1.7449	0.0297	2001000	46.19
15	13.897	1.7887	0.0310	1998000	46.14
16	14.409	1.8343	0.0326	1997000	46.12
17	14.934	1.8717	0.0338	1995000	46.09
18	15.435	1.9158	0.0354	1994000	46.07
19	15.954	1.9551	0.0368	1991000	46.02
20	16.485	1.9874	0.0380	1991000	46.02
21	16.981	2.0242	0.0394	1987000	45.93
22	17.493	2.0478	0.0405	1987000	45.92
23	17.999	2.0703	0.0426	1981000	45.81
24	18.513	2.0753	0.0509	1975000	45.67
25	19.020	2.0545	0.0711	1978000	45.75
26	19.512	2.0379	0.0870	1996000	46.17
27	20.013	1.9996	0.1092	1982000	45.86
28	20.467	1.9307	0.1327	1969000	45.56
29	20.950	1.8858	0.1551	1994000	46.16
30	21.443	1.8392	0.1776	1984000	45.93
31	21.860	1.6730	0.2083	1971000	45.64

Table 40: Case **c038**

Run Nr.	$\alpha$ [deg]	$C_l$ [-]	$C_d$ [-]	Re [-]	$U_\infty$ [m/s]
1	-6.235	-0.5575	0.0154	1979000	45.22
2	-5.204	-0.4362	0.0157	1982000	45.27
3	-4.180	-0.3084	0.0156	1983000	45.30
4	-2.108	-0.0444	0.0158	1982000	45.30
5	-0.044	0.2159	0.0162	1983000	45.30
6	2.015	0.4583	0.0171	1981000	45.27
7	4.085	0.7104	0.0183	1980000	45.25
8	5.119	0.8284	0.0192	1978000	45.21
9	6.160	0.9428	0.0199	1978000	45.21
10	7.178	1.0494	0.0208	1976000	45.17
11	8.212	1.1626	0.0218	1976000	45.16
12	9.238	1.2677	0.0229	1973000	45.11
13	10.264	1.3566	0.0240	1973000	45.11
14	11.304	1.4508	0.0265	1970000	45.04
15	12.350	1.5322	0.0293	2001000	45.76
16	13.356	1.5938	0.0319	1993000	45.58
17	14.349	1.5994	0.0505	1978000	45.25
18	15.374	1.6537	0.0601	1970000	45.08
19	15.884	1.6830	0.0645	2001000	45.78
20	16.395	1.7067	0.0717	1996000	45.67
21	16.888	1.7304	0.0809	1991000	45.57
22	17.387	1.7346	0.0983	1982000	45.35
23	17.887	1.7388	0.1118	1971000	45.12
24	18.388	1.7276	0.1327	1972000	45.16
25	18.893	1.7264	0.1442	1966000	45.02
26	19.378	1.7173	0.1561	1960000	44.89
27	19.893	1.7125	0.1658	1955000	44.79
28	20.357	1.6681	0.1795	1949000	44.66
29	21.306	1.4861	0.2182	1935000	44.33
30	22.271	1.3683	0.2408	1923000	44.06
31	23.219	1.2055	0.2554	1913000	43.84
32	24.199	1.1196	0.2497	1905000	43.67
33	25.219	1.0977	0.2651	1892000	43.37

Table 41: Case **c039**

Run Nr.	$\alpha$ [deg]	$C_l$ [-]	$C_d$ [-]	Re [-]	$U_\infty$ [m/s]
1	-6.240	-0.5565	0.0459	1988000	45.32
2	-5.202	-0.4322	0.0259	1986000	45.28
3	-4.170	-0.3015	0.0188	1986000	45.27
4	-2.101	-0.0300	0.0163	1986000	45.27
5	-0.038	0.2379	0.0152	1985000	45.26
6	2.023	0.4903	0.0158	1984000	45.24
7	4.095	0.7554	0.0165	1982000	45.19
8	5.131	0.8822	0.0171	1981000	45.18
9	6.173	1.0061	0.0177	1979000	45.15
10	7.193	1.1228	0.0184	1979000	45.14
11	8.230	1.2484	0.0189	1977000	45.10
12	9.258	1.3659	0.0197	1976000	45.08
13	10.282	1.4673	0.0203	1974000	45.05
14	11.318	1.5360	0.0232	1972000	44.99
15	12.358	1.5893	0.0280	1999000	45.63
16	13.338	1.5337	0.0502	1975000	45.09
17	14.343	1.5856	0.0585	1999000	45.65
18	15.347	1.5969	0.0854	1984000	45.30
19	15.841	1.6047	0.1032	1976000	45.11
20	16.356	1.6163	0.1156	2002000	45.72
21	16.832	1.6297	0.1277	1998000	45.62
22	17.329	1.6275	0.1421	1994000	45.54
23	17.819	1.6174	0.1560	1990000	45.45
24	18.311	1.5897	0.1683	1989000	45.43
25	18.812	1.5562	0.1795	1987000	45.41
26	19.288	1.5052	0.1842	1981000	45.28
27	19.792	1.4634	0.1909	1977000	45.19
28	20.267	1.4178	0.1954	1971000	45.05
29	21.263	1.3221	0.2047	1960000	44.81
30	22.242	1.2366	0.2199	1950000	44.58
31	23.223	1.1795	0.2385	1941000	44.40
32	24.209	1.1404	0.2511	1931000	44.17
33	25.228	1.1263	0.2725	1919000	43.90

Table 42: Case **c040**

Run Nr.	$\alpha$ [deg]	$C_l$ [-]	$C_d$ [-]	Re [-]	$U_\infty$ [m/s]
1	-4.177	-0.2948	0.0161	1984000	45.44
2	-2.120	-0.0254	0.0169	1984000	45.46
3	-0.048	0.2406	0.0175	1982000	45.45
4	2.020	0.4956	0.0185	1981000	45.43
5	4.090	0.7563	0.0196	1978000	45.38
6	5.125	0.8825	0.0204	1977000	45.37
7	6.170	1.0047	0.0211	1975000	45.34
8	7.189	1.1229	0.0218	1974000	45.33
9	8.222	1.2484	0.0227	1971000	45.29
10	9.249	1.3684	0.0236	2002000	45.99
11	10.274	1.4732	0.0245	1999000	45.95
12	11.322	1.6004	0.0258	1997000	45.93
13	12.370	1.7079	0.0277	1994000	45.87
14	13.394	1.8058	0.0313	1992000	45.83
15	14.409	1.8943	0.0354	1987000	45.74
16	14.945	1.9348	0.0374	1987000	45.74
17	15.440	1.9717	0.0392	1983000	45.66
18	15.911	1.8300	0.0654	1988000	45.77
19	16.421	1.8500	0.0730	1983000	45.67
20	16.928	1.8911	0.0774	1981000	45.63
21	17.437	1.9086	0.0878	1992000	45.89
22	17.935	1.9265	0.0986	1987000	45.78
23	18.443	1.9456	0.1071	1986000	45.75
24	18.941	1.9212	0.1233	1983000	45.69
25	19.382	1.8030	0.1450	1971000	45.42
26	19.865	1.7131	0.1646	2010000	46.32
27	20.328	1.6393	0.1850	1998000	46.05
28	21.298	1.5509	0.2225	1978000	45.61

Table 43: Case **c041**

## 2 Additional polars

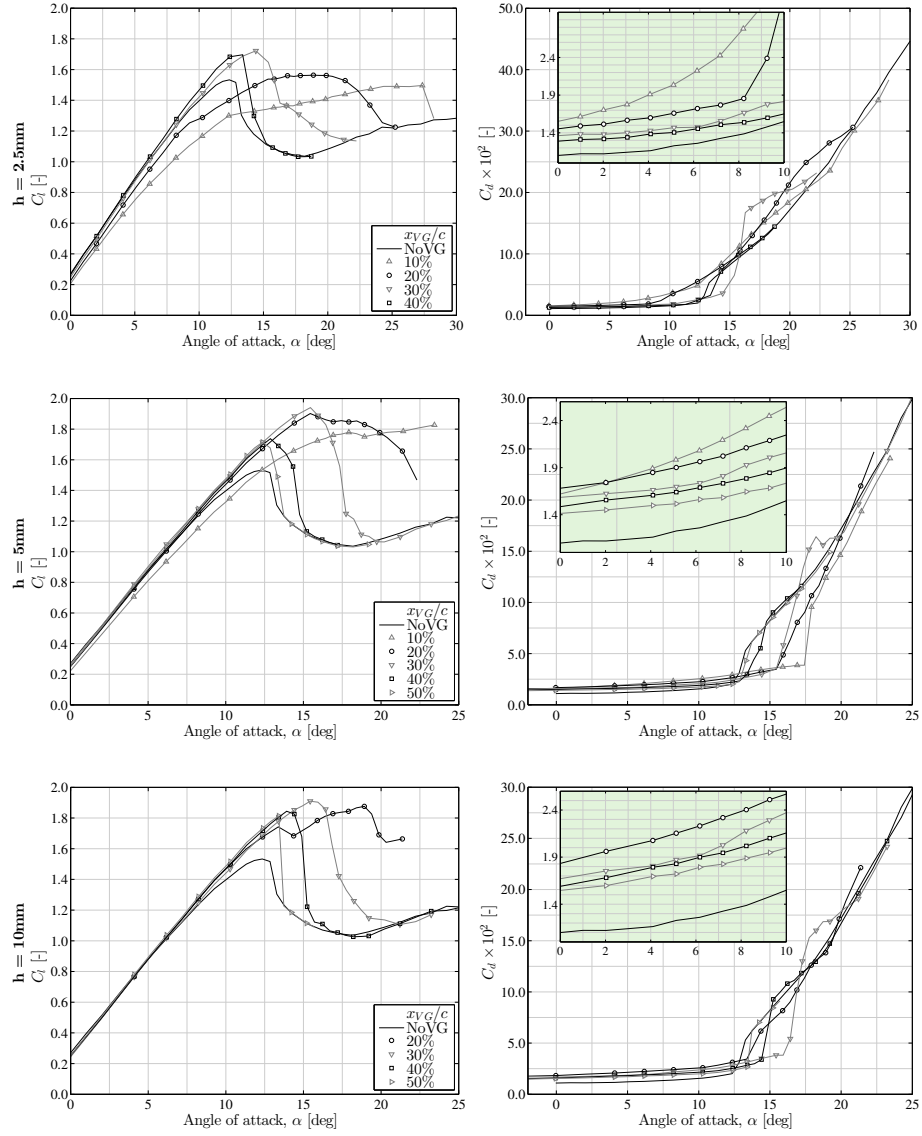


Figure 1: Sensitivity to the VG vane height and array chordwise placement. Graphs are grouped into rows according to the VG height (top-bottom):  $h = 2.5, 5$  and  $10$  mm.

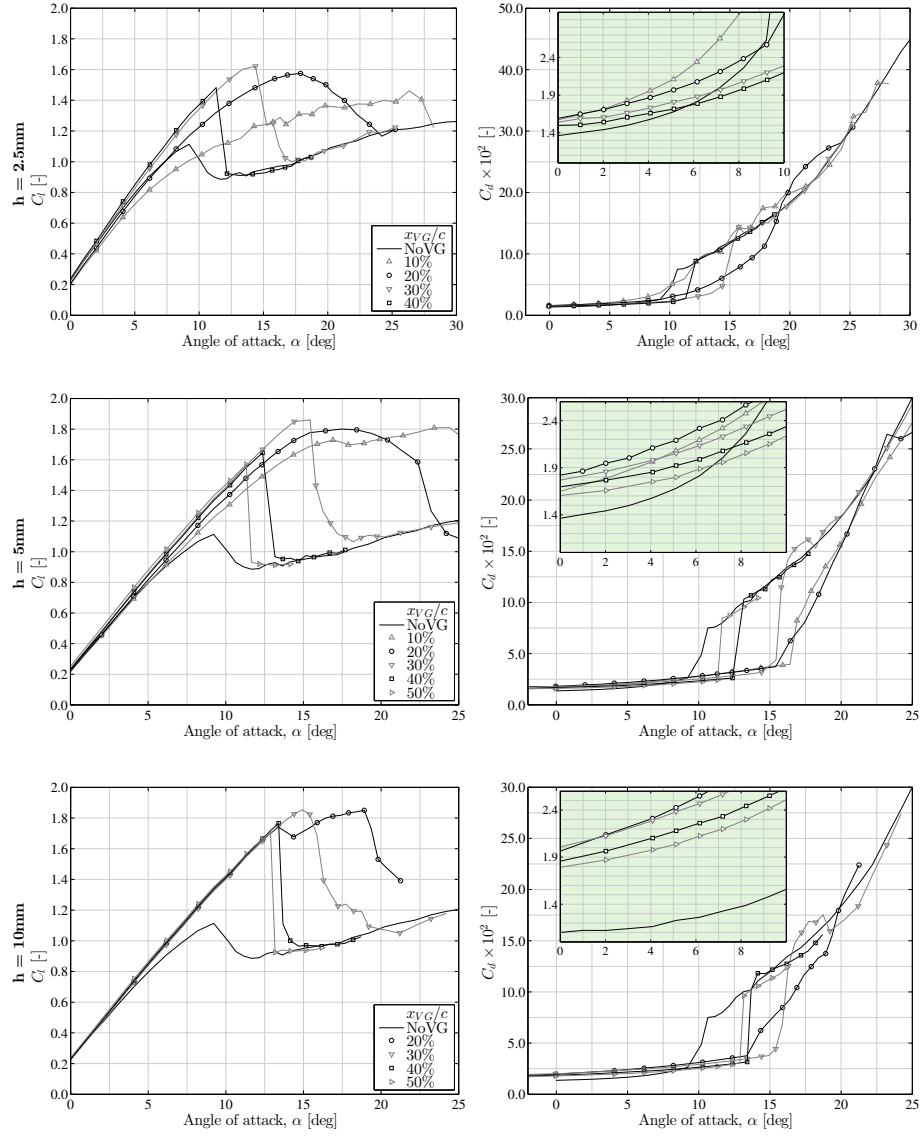


Figure 2: Sensitivity to the VG vane height and array chordwise placement for the tripped condition. Graphs are grouped into rows according to the VG height (top-bottom):  $h = 2.5, 5$  and  $10$  mm.

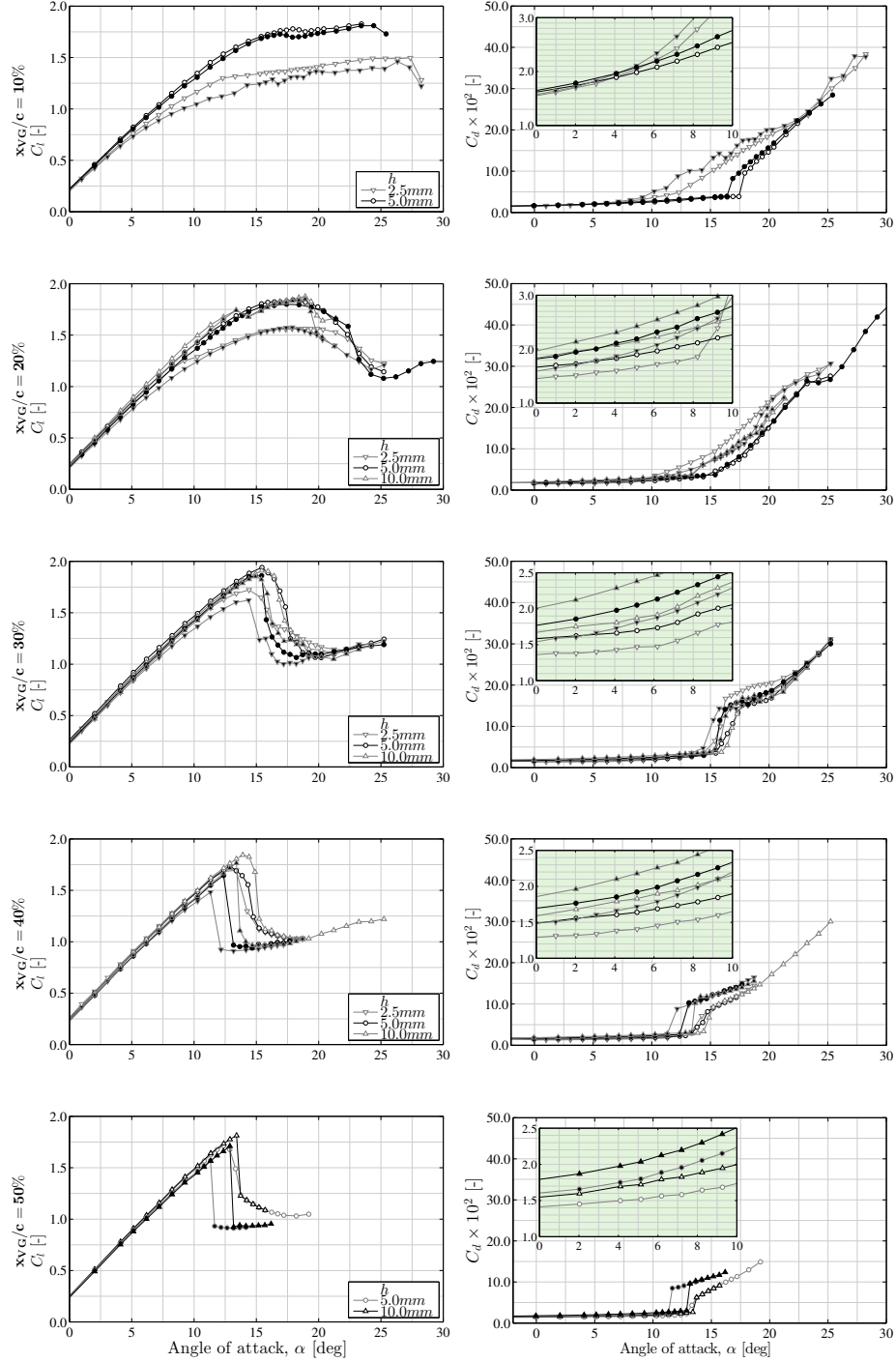


Figure 3: Sensitivity to array chordwise placement and VG vane height, comparing the clean and tripped condition. Graphs are grouped into rows according to the array chordwise placement (top-bottom):  $x_{VG} = 10\%c - 50\%c$ . Filled white and black symbols indicate clean and rough conditions respectively.