F-16

Flight Simulation Data

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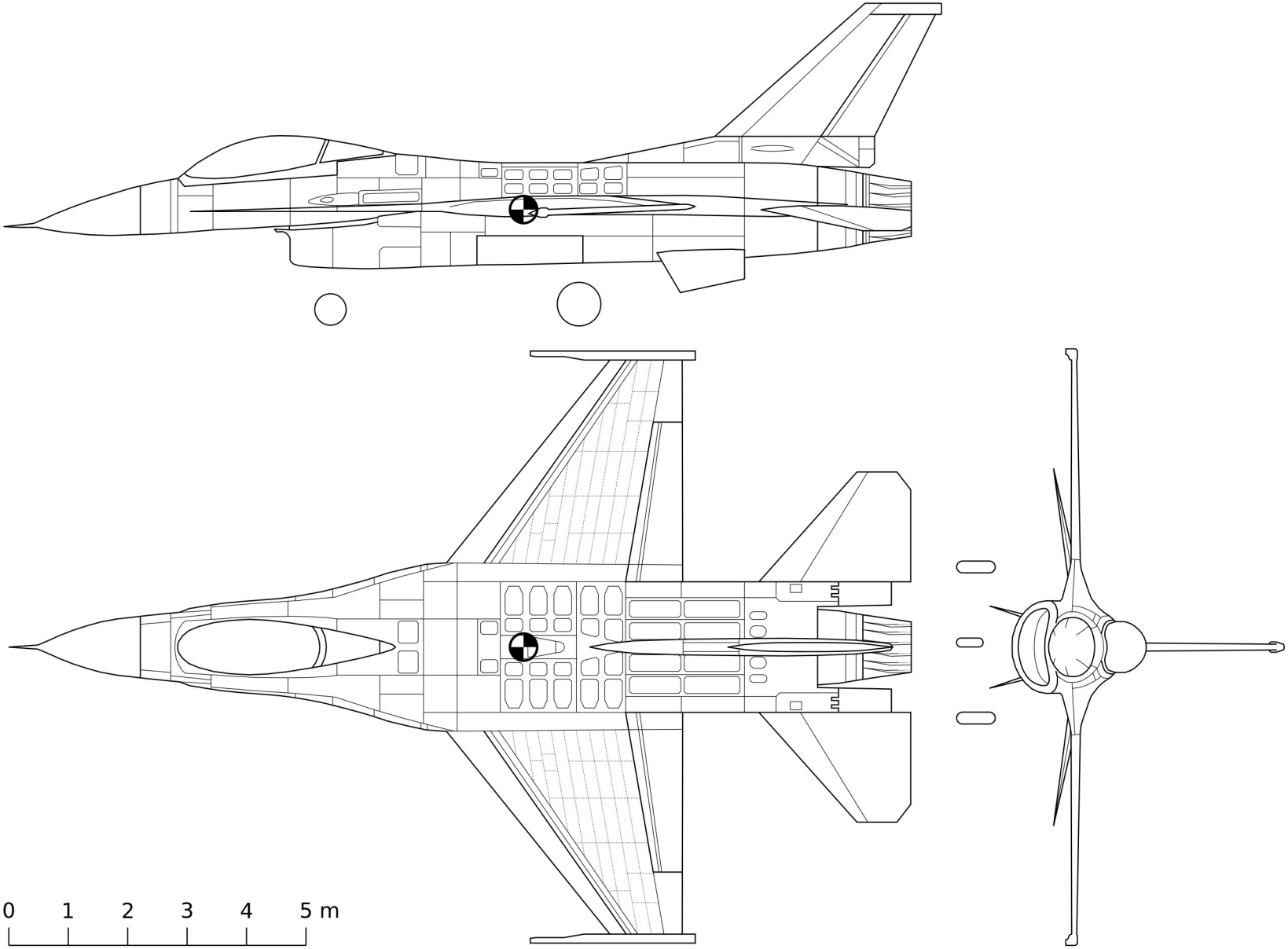

0 1 2 3 4 5 m

Notation

b	–	[m] wing span
c	–	[m] mean aerodynamic chord
C_l	–	[-] rolling moment coefficient
C_m	–	[-] pitching moment coefficient
C_n	–	[-] yawing moment coefficient
C_X	–	[-] body x-axis force coefficient
C_Y	–	[-] body y-axis force coefficient
C_Z	–	[-] body z-axis force coefficient
h	–	[m] altitude
S	–	[m^2] wing area
V	–	[m/s] velocity
α	–	[rad] angle of attack
β	–	[rad] angle of sideslip
δ_a	–	[deg] ailerons deflection
δ_h	–	[deg] horizontal stabilator deflection
δ_r	–	[deg] rudder deflection
δ_{lef}	–	[deg] leading edge flaps deflection
δ_{sb}	–	[deg] speed brake deflection
ρ	–	[kg/m^3] air density

1. General Data

Parameter	Value	Reference
Length	15.07 m	[1]
Wingspan	9.144 m	[1], [2]
Height	5.13 m	[1]
Wheelbase	4.00 m	[3]
Wheel track	2.36 m	[3]
Wing area	27.87 m^2	[1], [2]
Mean aerodynamic chord	3.45 m	[2]
Wing airfoil	NACA 64A204	[1]
Horizontal tails area (Pre-Block 15)	4.55 m^2	[4]
Horizontal tails area (Block 15 and subsequent)	5.92 m^2	[3], [4]
Vertical tail area	5.09 m^2	[1]
Ventral fin area (each)	0.75 m^2	[1]
Horizontal tails symmetric deflection limit	±25°	[2]
Horizontal tails differential deflection limit	±5.375°	[2]
Ailerons (flaperons) deflection limit	±21.5°	[2]
Rudder deflection limit	±30°	[2]
Leading edge flaps deflection limit	25°	[2]
Speed brake deflection limit	60°	[2]
Main landing gear stroke	0.267 m	[1]
Nose landing gear stroke	0.254 m	[1]
Empty weight	8 910 kg	[3]
Gross weight (including pilot, oil, 2 tip AIM-120 missiles, and full load of 20 mm ammunition)	9 525 kg	[1]
Gross weight (including pilot, oil, 2 tip AIM-120 missiles, full load of 20 mm ammunition and full internal JP-8 fuel)	12 791 kg	[1]
Internal wings fuel tanks capacity (each)	249 kg	[1]
Forward fuselage and forward reservoir fuel tanks capacity	1 474 kg	[1]
Aft fuselage and aft reservoir fuel tanks capacity	1 275 kg	[1]
Total internal fuel	3 152 kg	[1]
Moment of inertia I_x (for 9,299 kg)	12 875 kg·m^2	[2]
Moment of inertia I_y (for 9,299 kg)	75 674 kg·m^2	[2]

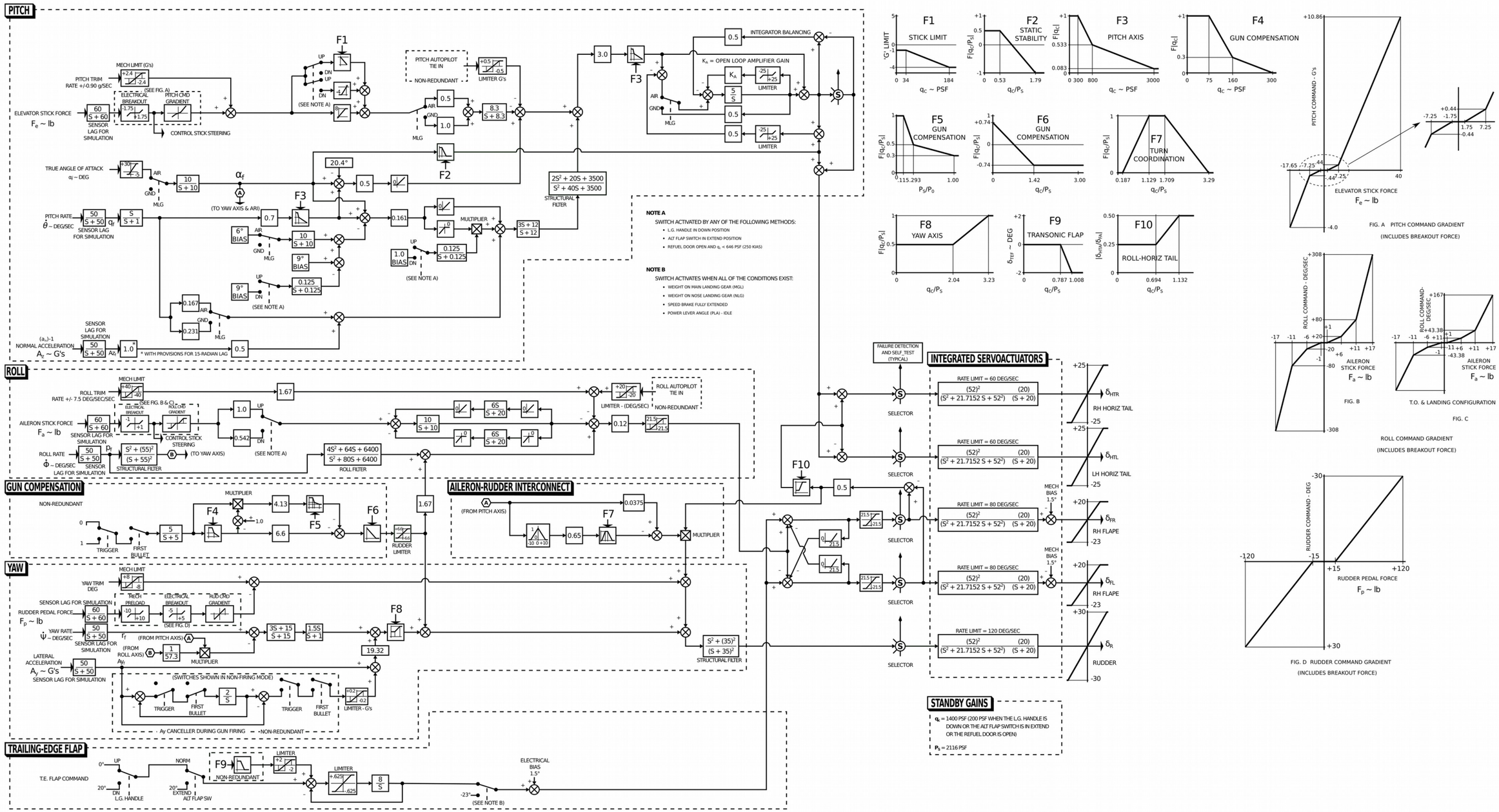
Parameter	Value	Reference
Moment of inertia I_z (for 9,299 kg)	85 552 kg·m^2	[2]
Cross product of inertia I_{xz} (for 9,299 kg)	1 331 kg·m^2	[2]
Reference center-of-gravity location	35% MAC	[2]
Engine manufacturer	Pratt & Whitney	[3]
Engine model	F100-PW-229	[3]
Engine military thrust	79 200 N	[3]
Engine maximum thrust	129 500 N	[3]
Engine dry weight	1 681 kg	[3]
Specific fuel consumption (maximum military thrust)	21.0 g/(kN·s)	[5]
Specific fuel consumption (maximum afterburner)	54.96 g/(kN·s)	[6]

2. Performance

Parameter	Value	Reference
Maximum allowable gross weight	21 772 kg	[1], [3]
Maximum speed (at 40 000 ft)	> Mach 2.0	[3]
Service ceiling	> 50 000 ft (15 240 m)	[3]
Ferry range (with 5 542 litres external fuel)	2 415 nmi	[3]

3. Flight Control System

Flight Control System (FLCS) data are given in [2], [7], [8] and [9].



F-16 Flight Control System Functional Block Diagram [8]

4. Aerodynamic Characteristics

Aerodynamic characteristics are given in [2] and [10] as coefficients expressed in Body Axis System.

Body x-axis force coefficient is given as follows: [2]

$$\begin{aligned} C_X = {} & C_X(\alpha,\beta,\delta_h) + \Delta C_{X,lef}\left(1-\frac{\delta_{lef}}{25}\right) + \Delta C_{X,sb}(\alpha)\left(\frac{\delta_{sb}}{60}\right) \\ & + \frac{cq}{2V}\left[C_{Xq}(\alpha) + \Delta C_{Xq,lef}(\alpha)\left(1-\frac{\delta_{lef}}{25}\right)\right] \end{aligned} \tag{4.1}$$

where:

$$\Delta C_{X,lef} = C_{X,lef}(\alpha,\beta) - C_X(\alpha,\beta,\delta_h = 0°) \tag{4.2}$$

Body y-axis force coefficient is given as follows: [2]

$$\begin{aligned} C_Y = {} & C_Y(\alpha,\beta) + \Delta C_{Y,lef}\left(1-\frac{\delta_{lef}}{25}\right) \\ & + \left[\Delta C_{Y,\delta_a=20°} + \Delta C_{Y,\delta_a=20°,lef}\left(1-\frac{\delta_{lef}}{25}\right)\right]\left(\frac{\delta_a}{20}\right) + \Delta C_{Y,\delta_r=30°}\left(\frac{\delta_r}{30}\right) \\ & + \frac{b}{2V}\left\{\left[C_{Yr}(\alpha) + \Delta C_{Yr,lef}(\alpha)\left(1-\frac{\delta_{lef}}{25}\right)\right]r + \left[C_{Yp}(\alpha) + \Delta C_{Yp,lef}(\alpha)\left(1-\frac{\delta_{lef}}{25}\right)\right]p\right\} \end{aligned} \tag{4.3}$$

where:

$$\Delta C_{Y,lef} = C_{Y,lef}(\alpha,\beta) - C_Y(\alpha,\beta) \tag{4.4}$$

$$\Delta C_{Y,\delta_a=20°} = C_{Y,\delta_a=20°}(\alpha,\beta) - C_Y(\alpha,\beta) \tag{4.5}$$

$$\Delta C_{Y,\delta_a=20°,lef} = C_{Y,\delta_a=20°,lef}(\alpha,\beta) - C_{Y,lef}(\alpha,\beta) - \left[C_{Y,\delta_a=20°}(\alpha,\beta) - C_Y(\alpha,\beta)\right] \tag{4.6}$$

$$\Delta C_{Y,\delta_r=30°} = C_{Y,\delta_r=30°}(\alpha,\beta) - C_Y(\alpha,\beta) \tag{4.7}$$

Body z-axis force coefficient is given as follows: [2]

$$\begin{aligned} C_Z = {} & C_Z(\alpha,\beta,\delta_h) + \Delta C_{Z,lef}\left(1-\frac{\delta_{lef}}{25}\right) + \Delta C_{Z,sb}(\alpha)\left(\frac{\delta_{sb}}{60}\right) \\ & + \frac{cq}{2V}\left[C_{Zq}(\alpha) + \Delta C_{Zq,lef}(\alpha)\left(1-\frac{\delta_{lef}}{25}\right)\right] \end{aligned} \tag{4.8}$$

where:

$$\Delta C_{Z,lef} = C_{Z,lef}(\alpha,\beta) - C_Z(\alpha,\beta,\delta_h = 0°) \tag{4.9}$$

Rolling moment coefficient is given as follows: [2]

$$\begin{aligned} C_l &= C_l(\alpha,\beta,\delta_h) + C_{l,lef}\left(1-\frac{\delta_{lef}}{25}\right) \\ &+ \left[\Delta C_{l,\delta_a=20^\circ} + \Delta C_{l,\delta_a=20^\circ,lef}\left(1-\frac{\delta_{lef}}{25}\right)\right]\left(\frac{\delta_a}{20}\right) + \Delta C_{l,\delta_r=30^\circ}\left(\frac{\delta_r}{30}\right) \\ &+ \left\{\left[C_{lr}(\alpha) + C_{lr,lef}(\alpha)\left(1-\frac{\delta_{lef}}{25}\right)\right]r + \left[C_{lp}(\alpha) + C_{lp,lef}(\alpha)\left(1-\frac{\delta_{lef}}{25}\right)\right]p\right\} + \Delta C_{l,\beta}(\alpha)\beta \end{aligned} \tag{4.10}$$

where:

$$\Delta C_{l,lef} = C_{l,lef}(\alpha,\beta) - C_l(\alpha,\beta,\delta_h=0^\circ) \tag{4.11}$$

$$\Delta C_{l,\delta_a=20^\circ} = C_{l,\delta_a=20^\circ}(\alpha,\beta) - C_l(\alpha,\beta,\delta_h=0^\circ) \tag{4.12}$$

$$\Delta C_{l,\delta_a=20^\circ,lef} = C_{l,\delta_a=20^\circ,lef}(\alpha,\beta) - C_{l,lef}(\alpha,\beta,\delta_h=0^\circ) - \left[C_{l,\delta_a=20^\circ}(\alpha,\beta) - C_l(\alpha,\beta,\delta_h=0^\circ)\right] \tag{4.13}$$

$$\Delta C_{l,\delta_r=30^\circ} = C_{l,\delta_r=30^\circ}(\alpha,\beta) - C_l(\alpha,\beta,\delta_h=0^\circ) \tag{4.14}$$

Pitching moment coefficient is given as follows: [2]

$$\begin{aligned} C_m &= C_m(\alpha,\beta,\delta_h)\,\eta_{\delta_h}(\delta_h) + C_{Z,b}(x_{CG,ref} - x_{CG}) + \Delta C_{m,lef}\left(1-\frac{\delta_{lef}}{25}\right) \\ &+ \Delta C_{m,sb}(\alpha)\left(\frac{\delta_{sb}}{60}\right) + \frac{cq}{2V}\left[C_{mq}(\alpha) + \Delta C_{mq,lef}(\alpha)\left(1-\frac{\delta_{lef}}{25}\right)\right] + \Delta C_m(\alpha) + \Delta C_{m,ds}(\alpha,\delta_h) \end{aligned} \tag{4.15}$$

where:

$$\Delta C_{m,lef} = C_{m,lef}(\alpha,\beta) - C_m(\alpha,\beta,\delta_h=0^\circ) \tag{4.16}$$

Yawing moment coefficient is given as follows: [2]

$$\begin{aligned} C_n &= C_n(\alpha,\beta,\delta_h) + \Delta C_{n,lef}\left(1-\frac{\delta_{lef}}{25}\right) - C_{Y,b}(x_{cg,ref} - x_{cg})\frac{c}{b} \\ &+ \left[\Delta C_{n,\delta_a=20^\circ} + \Delta C_{n,\delta_a=20^\circ,lef}\left(1-\frac{\delta_{lef}}{25}\right)\right]\left(\frac{\delta_a}{20}\right) + \Delta C_{n,\delta_r=30^\circ}\left(\frac{\delta_r}{30}\right) \\ &+ \left\{\left[C_{nr}(\alpha) + \Delta C_{nr}(\alpha,lef)\left(1-\frac{\delta_{lef}}{25}\right)\right]r + \left[C_{np}(\alpha) + \Delta C_{np}(\alpha,lef)\left(1-\frac{\delta_{lef}}{25}\right)\right]p\right\} + \Delta C_{n,\beta}(\alpha)\beta \end{aligned} \tag{4.17}$$

where:

$$\Delta C_{n,lef} = C_{n,lef}(\alpha,\beta) - C_n(\alpha,\beta,\delta_h=0^\circ) \tag{4.18}$$

$$\Delta C_{n,\delta_a=20^\circ} = C_{n,\delta_a=20^\circ}(\alpha,\beta) - C_n(\alpha,\beta,\delta_h=0^\circ) \tag{4.19}$$

$$\Delta C_{n,\delta_a=20^\circ,lef} = C_{n,\delta_a=20^\circ,lef}(\alpha,\beta) - C_{n,lef}(\alpha,\beta,\delta_h=0^\circ) - \left[C_{n,\delta_a=20^\circ}(\alpha,\beta) - C_n(\alpha,\beta,\delta_h=0^\circ)\right] \tag{4.20}$$

$$\Delta C_{l,\delta_r=30^\circ} = C_{l,\delta_r=30^\circ}(\alpha,\beta) - C_l(\alpha,\beta,\delta_h=0^\circ) \tag{4.21}$$

	-30.0	**-25.0**	**-20.0**	**-15.0**	**-10.0**	**-8.0**	**-6.0**	**-4.0**	**-2.0**	**0.0**	**2.0**	**4.0**	**6.0**	**8.0**	**10.0**	**15.0**	**20.0**	**25.0**	**30.0**
-20.0	-0.1837	-0.1853	-0.1904	-0.1899	-0.1949	-0.1914	-0.1872	-0.1860	-0.1860	-0.1868	-0.1899	-0.1902	-0.1900	-0.1837	-0.1853	-0.1904	-0.1899	-0.1949	-0.1914
-15.0	-0.1714	-0.1765	-0.1792	-0.1827	-0.1816	-0.1834	-0.1852	-0.1853	-0.1877	-0.1875	-0.1898	-0.1876	-0.1868	-0.1714	-0.1765	-0.1792	-0.1827	-0.1816	-0.1834
-10.0	-0.1531	-0.1627	-0.1692	-0.1718	-0.1695	-0.1693	-0.1707	-0.1735	-0.1772	-0.1787	-0.1769	-0.1729	-0.1711	-0.1531	-0.1627	-0.1692	-0.1718	-0.1695	-0.1693
-5.0	-0.1151	-0.1232	-0.1276	-0.1317	-0.1390	-0.1415	-0.1420	-0.1425	-0.1437	-0.1432	-0.1425	-0.1422	-0.1410	-0.1151	-0.1232	-0.1276	-0.1317	-0.1390	-0.1415
0.0	-0.0907	-0.0985	-0.1043	-0.1093	-0.1120	-0.1115	-0.1122	-0.1124	-0.1130	-0.1132	-0.1129	-0.1119	-0.1110	-0.0907	-0.0985	-0.1043	-0.1093	-0.1120	-0.1115
5.0	-0.0514	-0.0567	-0.0603	-0.0640	-0.0653	-0.0661	-0.0668	-0.0675	-0.0690	-0.0693	-0.0686	-0.0680	-0.0664	-0.0514	-0.0567	-0.0603	-0.0640	-0.0653	-0.0661
10.0	-0.0079	-0.0108	-0.0099	-0.0101	-0.0074	-0.0070	-0.0078	-0.0090	-0.0116	-0.0120	-0.0123	-0.0106	-0.0088	-0.0079	-0.0108	-0.0099	-0.0101	-0.0074	-0.0070
15.0	0.0354	0.0358	0.0388	0.0402	0.0477	0.0503	0.0535	0.0553	0.0538	0.0537	0.0533	0.0536	0.0527	0.0354	0.0358	0.0388	0.0402	0.0477	0.0503
20.0	0.0740	0.0756	0.0746	0.0745	0.0867	0.0888	0.0924	0.0941	0.0948	0.0951	0.0975	0.0939	0.0913	0.0740	0.0756	0.0746	0.0745	0.0867	0.0888
25.0	0.1092	0.1124	0.1102	0.1067	0.1101	0.1121	0.1126	0.1129	0.1123	0.1111	0.1122	0.1125	0.1136	0.1092	0.1124	0.1102	0.1067	0.1101	0.1121
30.0	0.0915	0.1010	0.0975	0.1079	0.1188	0.1333	0.1399	0.1422	0.1443	0.1435	0.1431	0.1407	0.1378	0.0915	0.1010	0.0975	0.1079	0.1188	0.1333
35.0	0.1079	0.1137	0.1198	0.1278	0.1402	0.1425	0.1478	0.1570	0.1623	0.1663	0.1667	0.1664	0.1637	0.1079	0.1137	0.1198	0.1278	0.1402	0.1425
40.0	0.1306	0.1437	0.1350	0.1441	0.1574	0.1585	0.1601	0.1682	0.1726	0.1739	0.1711	0.1699	0.1655	0.1306	0.1437	0.1350	0.1441	0.1574	0.1585
45.0	0.1535	0.1603	0.1605	0.1604	0.1637	0.1671	0.1664	0.1639	0.1674	0.1659	0.1649	0.1650	0.1625	0.1535	0.1603	0.1605	0.1604	0.1637	0.1671
50.0	0.1471	0.1584	0.1646	0.1671	0.1712	0.1712	0.1676	0.1644	0.1656	0.1693	0.1714	0.1728	0.1749	0.1471	0.1584	0.1646	0.1671	0.1712	0.1712
55.0	0.1554	0.1615	0.1568	0.1661	0.1778	0.1769	0.1765	0.1749	0.1762	0.1804	0.1743	0.1666	0.1677	0.1554	0.1615	0.1568	0.1661	0.1778	0.1769
60.0	0.1501	0.1599	0.1647	0.1525	0.1664	0.1662	0.1704	0.1710	0.1719	0.1718	0.1728	0.1730	0.1734	0.1501	0.1599	0.1647	0.1525	0.1664	0.1662
70.0	0.1501	0.1536	0.1569	0.1420	0.1573	0.1595	0.1788	0.1715	0.1738	0.1695	0.1710	0.1712	0.1730	0.1501	0.1536	0.1569	0.1420	0.1573	0.1595
80.0	0.1685	0.1615	0.1559	0.1520	0.1521	0.1521	0.1535	0.1585	0.1566	0.1598	0.1573	0.1563	0.1586	0.1685	0.1615	0.1559	0.1520	0.1521	0.1521
90.0	0.1712	0.1651	0.1608	0.1648	0.1676	0.1660	0.1686	0.1667	0.1669	0.1660	0.1672	0.1662	0.1664	0.1712	0.1651	0.1608	0.1648	0.1676	0.1660

$C_{X,\delta h=-25^{\circ}}(\alpha,\beta)$ *[2]*

	-30.0	**-25.0**	**-20.0**	**-15.0**	**-10.0**	**-8.0**	**-6.0**	**-4.0**	**-2.0**	**0.0**	**2.0**	**4.0**	**6.0**	**8.0**	**10.0**	**15.0**	**20.0**	**25.0**	**30.0**
-20.0	-0.1362	-0.1351	-0.1419	-0.1386	-0.1374	-0.1330	-0.1268	-0.1249	-0.1222	-0.1223	-0.1246	-0.1247	-0.1252	-0.1362	-0.1351	-0.1419	-0.1386	-0.1374	-0.1330
-15.0	-0.1216	-0.1245	-0.1235	-0.1208	-0.1176	-0.1176	-0.1170	-0.1177	-0.1184	-0.1188	-0.1185	-0.1187	-0.1182	-0.1216	-0.1245	-0.1235	-0.1208	-0.1176	-0.1176
-10.0	-0.1018	-0.1066	-0.1068	-0.1071	-0.1061	-0.1068	-0.1072	-0.1083	-0.1094	-0.1147	-0.1095	-0.1084	-0.1077	-0.1018	-0.1066	-0.1068	-0.1071	-0.1061	-0.1068
-5.0	-0.0655	-0.0706	-0.0746	-0.0771	-0.0836	-0.0864	-0.0876	-0.0887	-0.0889	-0.0893	-0.0885	-0.0875	-0.0859	-0.0655	-0.0706	-0.0746	-0.0771	-0.0836	-0.0864
0.0	-0.0483	-0.0509	-0.0532	-0.0544	-0.0578	-0.0589	-0.0597	-0.0606	-0.0613	-0.0617	-0.0611	-0.0603	-0.0595	-0.0483	-0.0509	-0.0532	-0.0544	-0.0578	-0.0589
5.0	-0.0118	-0.0106	-0.0096	-0.0102	-0.0142	-0.0148	-0.0155	-0.0161	-0.0177	-0.0172	-0.0178	-0.0167	-0.0156	-0.0118	-0.0106	-0.0096	-0.0102	-0.0142	-0.0148
10.0	0.0268	0.0328	0.0367	0.0399	0.0412	0.0417	0.0408	0.0413	0.0406	0.0399	0.0399	0.0409	0.0415	0.0268	0.0328	0.0367	0.0399	0.0412	0.0417
15.0	0.0735	0.0800	0.0887	0.0934	0.0983	0.1006	0.1024	0.1034	0.1033	0.1027	0.1031	0.1027	0.1018	0.0735	0.0800	0.0887	0.0934	0.0983	0.1006
20.0	0.1222	0.1275	0.1258	0.1249	0.1326	0.1347	0.1350	0.1349	0.1325	0.1322	0.1332	0.1338	0.1343	0.1222	0.1275	0.1258	0.1249	0.1326	0.1347
25.0	0.1374	0.1474	0.1466	0.1454	0.1465	0.1485	0.1485	0.1453	0.1429	0.1407	0.1418	0.1443	0.1457	0.1374	0.1474	0.1466	0.1454	0.1465	0.1485
30.0	0.1056	0.1261	0.1297	0.1437	0.1500	0.1619	0.1655	0.1660	0.1663	0.1651	0.1640	0.1643	0.1624	0.1056	0.1261	0.1297	0.1437	0.1500	0.1619
35.0	0.1075	0.1154	0.1299	0.1377	0.1523	0.1581	0.1722	0.1789	0.1801	0.1795	0.1793	0.1804	0.1782	0.1075	0.1154	0.1299	0.1377	0.1523	0.1581
40.0	0.1335	0.1412	0.1365	0.1456	0.1597	0.1622	0.1725	0.1762	0.1798	0.1798	0.1810	0.1771	0.1710	0.1335	0.1412	0.1365	0.1456	0.1597	0.1622
45.0	0.1521	0.1486	0.1517	0.1520	0.1608	0.1613	0.1597	0.1671	0.1667	0.1671	0.1664	0.1653	0.1629	0.1521	0.1486	0.1517	0.1520	0.1608	0.1613
50.0	0.1346	0.1410	0.1422	0.1486	0.1561	0.1570	0.1538	0.1511	0.1515	0.1544	0.1549	0.1547	0.1560	0.1346	0.1410	0.1422	0.1486	0.1561	0.1570
55.0	0.1375	0.1367	0.1251	0.1336	0.1467	0.1472	0.1475	0.1465	0.1462	0.1488	0.1433	0.1361	0.1370	0.1375	0.1367	0.1251	0.1336	0.1467	0.1472
60.0	0.1316	0.1360	0.1355	0.1154	0.1285	0.1289	0.1336	0.1351	0.1372	0.1383	0.1356	0.1320	0.1387	0.1316	0.1360	0.1355	0.1154	0.1285	0.1289
70.0	0.1171	0.1174	0.1185	0.1108	0.1161	0.1187	0.1376	0.1312	0.1353	0.1328	0.1301	0.1263	0.1270	0.1171	0.1174	0.1185	0.1108	0.1161	0.1187
80.0	0.1201	0.1161	0.1136	0.1124	0.1158	0.1148	0.1149	0.1194	0.1177	0.1211	0.1195	0.1195	0.1225	0.1201	0.1161	0.1136	0.1124	0.1158	0.1148
90.0	0.1287	0.1241	0.1214	0.1221	0.1265	0.1256	0.1257	0.1236	0.1248	0.1247	0.1262	0.1256	0.1256	0.1287	0.1241	0.1214	0.1221	0.1265	0.1256

$C_{X,\delta h=-10^{\circ}}(\alpha,\beta)$ *[2]*

	-30.0	**-25.0**	**-20.0**	**-15.0**	**-10.0**	**-8.0**	**-6.0**	**-4.0**	**-2.0**	**0.0**	**2.0**	**4.0**	**6.0**	**8.0**	**10.0**	**15.0**	**20.0**	**25.0**	**30.0**
-20.0	-0.1072	-0.1061	-0.1129	-0.1096	-0.1084	-0.1040	-0.0978	-0.0959	-0.0932	-0.0933	-0.0956	-0.0957	-0.0962	-0.1072	-0.1061	-0.1129	-0.1096	-0.1084	-0.1040
-15.0	-0.1006	-0.1035	-0.1025	-0.0998	-0.0966	-0.0966	-0.0960	-0.0967	-0.0974	-0.0978	-0.0975	-0.0977	-0.0972	-0.1006	-0.1035	-0.1025	-0.0998	-0.0966	-0.0966
-10.0	-0.0853	-0.0901	-0.0903	-0.0906	-0.0896	-0.0903	-0.0907	-0.0918	-0.0929	-0.0982	-0.0930	-0.0919	-0.0912	-0.0853	-0.0901	-0.0903	-0.0906	-0.0896	-0.0903
-5.0	-0.0546	-0.0597	-0.0637	-0.0662	-0.0727	-0.0755	-0.0767	-0.0778	-0.0780	-0.0784	-0.0776	-0.0766	-0.0750	-0.0546	-0.0597	-0.0637	-0.0662	-0.0727	-0.0755
0.0	-0.0355	-0.0381	-0.0404	-0.0416	-0.0450	-0.0461	-0.0469	-0.0478	-0.0485	-0.0489	-0.0483	-0.0475	-0.0467	-0.0355	-0.0381	-0.0404	-0.0416	-0.0450	-0.0461
5.0	-0.0012	0.0000	0.0010	0.0004	-0.0036	-0.0042	-0.0049	-0.0055	-0.0071	-0.0066	-0.0072	-0.0061	-0.0050	-0.0012	0.0000	0.0010	0.0004	-0.0036	-0.0042
10.0	0.0359	0.0491	0.0458	0.0490	0.0503	0.0508	0.0499	0.0509	0.0497	0.0490	0.0490	0.0500	0.0506	0.0359	0.0491	0.0458	0.0490	0.0503	0.0508
15.0	0.0780	0.0845	0.0932	0.0979	0.1028	0.1051	0.1069	0.1079	0.1078	0.1072	0.1076	0.1072	0.1063	0.0780	0.0845	0.0932	0.0979	0.1028	0.1051
20.0	0.1183	0.1236	0.1219	0.1210	0.1287	0.1308	0.1311	0.1310	0.1286	0.1283	0.1293	0.1299	0.1304	0.1183	0.1236	0.1219	0.1210	0.1287	0.1308
25.0	0.1267	0.1367	0.1359	0.1347	0.1358	0.1378	0.1378	0.1346	0.1322	0.1300	0.1311	0.1336	0.1350	0.1267	0.1367	0.1359	0.1347	0.1358	0.1378
30.0	0.0941	0.1146	0.1182	0.1322	0.1385	0.1504	0.1540	0.1545	0.1548	0.1536	0.1525	0.1528	0.1509	0.0941	0.1146	0.1182	0.1322	0.1385	0.1504
35.0	0.0885	0.0964	0.1109	0.1187	0.1333	0.1391	0.1532	0.1599	0.1611	0.1605	0.1603	0.1614	0.1592	0.0885	0.0964	0.1109	0.1187	0.1333	0.1391
40.0	0.1089	0.1166	0.1119	0.1210	0.1351	0.1376	0.1479	0.1516	0.1552	0.1552	0.1564	0.1525	0.1464	0.1089	0.1166	0.1119	0.1210	0.1351	0.1376
45.0	0.1232	0.1197	0.1228	0.1231	0.1319	0.1324	0.1308	0.1332	0.1378	0.1382	0.1375	0.1364	0.1340	0.1232	0.1197	0.1228	0.1231	0.1319	0.1324
50.0	0.1135	0.1185	0.1184	0.1171	0.1243	0.1279	0.1279	0.1258	0.1257	0.1281	0.1258	0.1228	0.1221	0.1135	0.1185	0.1184	0.1171	0.1243	0.1279
55.0	0.1137	0.1195	0.1146	0.1161	0.1209	0.1211	0.1211	0.1195	0.1183	0.1200	0.1185	0.1153	0.1160	0.1137	0.1195	0.1146	0.1161	0.1209	0.1211
60.0	0.1037	0.1090	0.1094	0.1049	0.1109	0.1123	0.1181	0.1184	0.1170	0.1147	0.1141	0.1126	0.1129	0.1037	0.1090	0.1094	0.1049	0.1109	0.1123
70.0	0.0857	0.0858	0.0857	0.0796	0.0851	0.0919	0.1150	0.1087	0.1089	0.1025	0.1022	0.1007	0.1012	0.0857	0.0858	0.0857	0.0796	0.0851	0.0919
80.0	0.0842	0.0807	0.0787	0.0778	0.0791	0.0793	0.0805	0.0846	0.0808	0.0821	0.0802	0.0799	0.0826	0.0842	0.0807	0.0787	0.0778	0.0791	0.0793
90.0	0.0847	0.0813	0.0798	0.0824	0.0843	0.0843	0.0853	0.0841	0.0858	0.0864	0.0857	0.0828	0.0817	0.0847	0.0813	0.0798	0.0824	0.0843	0.0843

$C_{X,\delta h=0^{\circ}}(\alpha,\beta)$ *[2]*

	-30.0	**-25.0**	**-20.0**	**-15.0**	**-10.0**	**-8.0**	**-6.0**	**-4.0**	**-2.0**	**0.0**	**2.0**	**4.0**	**6.0**	**8.0**	**10.0**	**15.0**	**20.0**	**25.0**	**30.0**
-20.0	-0.1023	-0.1012	-0.1080	-0.1047	-0.1035	-0.0991	-0.0929	-0.0910	-0.0884	-0.0884	-0.0907	-0.0908	-0.0913	-0.1023	-0.1012	-0.1080	-0.1047	-0.1035	-0.0991
-15.0	-0.1038	-0.1067	-0.1057	-0.1030	-0.0998	-0.0998	-0.0992	-0.0999	-0.1006	-0.1010	-0.1007	-0.1009	-0.1004	-0.1038	-0.1067	-0.1057	-0.1030	-0.0998	-0.0998
-10.0	-0.0963	-0.1011	-0.1013	-0.1016	-0.1006	-0.1013	-0.1017	-0.1028	-0.1039	-0.1092	-0.1040	-0.1029	-0.1022	-0.0963	-0.1011	-0.1013	-0.1016	-0.1006	-0.1013
-5.0	-0.0664	-0.0715	-0.0755	-0.0780	-0.0845	-0.0873	-0.0885	-0.0896	-0.0898	-0.0902	-0.0894	-0.0884	-0.0868	-0.0664	-0.0715	-0.0755	-0.0780	-0.0845	-0.0873
0.0	-0.0472	-0.0498	-0.0521	-0.0533	-0.0567	-0.0578	-0.0586	-0.0595	-0.0602	-0.0606	-0.0600	-0.0592	-0.0584	-0.0472	-0.0498	-0.0521	-0.0533	-0.0567	-0.0578
5.0	-0.0146	-0.0134	-0.0124	-0.0130	-0.0170	-0.0176	-0.0183	-0.0189	-0.0205	-0.0200	-0.0206	-0.0195	-0.0184	-0.0146	-0.0134	-0.0124	-0.0130	-0.0170	-0.0176
10.0	0.0182	0.0242	0.0281	0.0313	0.0326	0.0331	0.0322	0.0327	0.0320	0.0313	0.0313	0.0323	0.0329	0.0182	0.0242	0.0281	0.0313	0.0326	0.0331
15.0	0.0537	0.0602	0.0689	0.0736	0.0785	0.0808	0.0826	0.0836	0.0835	0.0829	0.0833	0.0829	0.0820	0.0537	0.0602	0.0689	0.0736	0.0785	0.0808
20.0	0.0871	0.0924	0.0907	0.0898	0.0975	0.0996	0.0999	0.0998	0.0974	0.0971	0.0981	0.0987	0.0992	0.0871	0.0924	0.0907	0.0898	0.0975	0.0996
25.0	0.0916	0.1016	0.1008	0.0996	0.1007	0.1027	0.1027	0.0995	0.0971	0.0949	0.0960	0.0985	0.0999	0.0916	0.1016	0.1008	0.0996	0.1007	0.1027
30.0	0.0509	0.0714	0.0750	0.0890	0.0953	0.1072	0.1108	0.1113	0.1116	0.1104	0.1093	0.1096	0.1077	0.0509	0.0714	0.0750	0.0890	0.0953	0.1072
35.0	0.0481	0.0560	0.0705	0.0783	0.0929	0.0987	0.1128	0.1195	0.1207	0.1201	0.1199	0.1210	0.1188	0.0481	0.0560	0.0705	0.0783	0.0929	0.0987
40.0	0.0664	0.0741	0.0694	0.0785	0.0926	0.0951	0.1054	0.1091	0.1127	0.1127	0.1139	0.1100	0.1039	0.0664	0.0741	0.0694	0.0785	0.0926	0.0951
45.0	0.0846	0.0811	0.0842	0.0845	0.0933	0.0938	0.0922	0.0946	0.0992	0.0996	0.0989	0.0978	0.0954	0.0846	0.0811	0.0842	0.0845	0.0933	0.0938
50.0	0.0908	0.0985	0.1011	0.0999	0.1063	0.1061	0.1018	0.0996	0.1021	0.1071	0.1071	0.1064	0.1070	0.0908	0.0985	0.1011	0.0999	0.1063	0.1061
55.0	0.0842	0.0869	0.0790	0.0882	0.1025	0.1010	0.0993	0.0980	0.0991	0.1030	0.0972	0.0897	0.0914	0.0842	0.0869	0.0790	0.0882	0.1025	0.1010
60.0	0.0749	0.0823	0.0849	0.0794	0.0831	0.0841	0.0896	0.0908	0.0915	0.0914	0.0908	0.0893	0.0895	0.0749	0.0823	0.0849	0.0794	0.0831	0.0841
70.0	0.0504	0.0500	0.0504	0.0467	0.0813	0.0811	0.0972	0.0950	0.1075	0.1190	0.1101	0.1001	0.0967	0.0504	0.0500	0.0504	0.0467	0.0813	0.0811
80.0	0.0421	0.0380	0.0355	0.0397	0.0420	0.0417	0.0424	0.0478	0.0473	0.0519	0.0484	0.0465	0.0489	0.0421	0.0380	0.0355	0.0397	0.0420	0.0417
90.0	0.0433	0.0404	0.0395	0.0467	0.0495	0.0492	0.0499	0.0484	0.0500	0.0504	0.0495	0.0463	0.0457	0.0433	0.0404	0.0395	0.0467	0.0495	0.0492

$C_{X,\delta h=10^{\circ}}(\alpha,\beta)$ [2]

	-30.0	**-25.0**	**-20.0**	**-15.0**	**-10.0**	**-8.0**	**-6.0**	**-4.0**	**-2.0**	**0.0**	**2.0**	**4.0**	**6.0**	**8.0**	**10.0**	**15.0**	**20.0**	**25.0**	**30.0**
-20.0	-0.1068	-0.1102	-0.1160	-0.1176	-0.1291	-0.1289	-0.1244	-0.1158	-0.1137	-0.1141	-0.1164	-0.1192	-0.1200	-0.1068	-0.1102	-0.1160	-0.1176	-0.1291	-0.1289
-15.0	-0.1122	-0.1180	-0.1227	-0.1292	-0.1365	-0.1397	-0.1406	-0.1416	-0.1442	-0.1450	-0.1448	-0.1428	-0.1408	-0.1122	-0.1180	-0.1227	-0.1292	-0.1365	-0.1397
-10.0	-0.1102	-0.1212	-0.1319	-0.1359	-0.1403	-0.1427	-0.1454	-0.1480	-0.1520	-0.1633	-0.1518	-0.1482	-0.1457	-0.1102	-0.1212	-0.1319	-0.1359	-0.1403	-0.1427
-5.0	-0.0911	-0.1027	-0.1093	-0.1144	-0.1244	-0.1304	-0.1316	-0.1320	-0.1333	-0.1337	-0.1340	-0.1322	-0.1309	-0.0911	-0.1027	-0.1093	-0.1144	-0.1244	-0.1304
0.0	-0.0811	-0.0889	-0.0955	-0.0996	-0.1015	-0.1037	-0.1056	-0.1065	-0.1077	-0.1075	-0.1072	-0.1061	-0.1045	-0.0811	-0.0889	-0.0955	-0.0996	-0.1015	-0.1037
5.0	-0.0575	-0.0588	-0.0631	-0.0676	-0.0671	-0.0694	-0.0715	-0.0739	-0.0775	-0.0785	-0.0787	-0.0744	-0.0704	-0.0575	-0.0588	-0.0631	-0.0676	-0.0671	-0.0694
10.0	-0.0183	-0.0188	-0.0211	-0.0241	-0.0226	-0.0254	-0.0291	-0.0333	-0.0370	-0.0336	-0.0345	-0.0326	-0.0283	-0.0183	-0.0188	-0.0211	-0.0241	-0.0226	-0.0254
15.0	0.0195	0.0186	0.0204	0.0186	0.0194	0.0181	0.0154	0.0162	0.0198	0.0212	0.0157	0.0131	0.0136	0.0195	0.0186	0.0204	0.0186	0.0194	0.0181
20.0	0.0494	0.0626	0.0562	0.0477	0.0323	0.0279	0.0289	0.0263	0.0204	0.0187	0.0173	0.0255	0.0183	0.0494	0.0626	0.0562	0.0477	0.0323	0.0279
25.0	0.0699	0.0695	0.0627	0.0557	0.0366	0.0316	0.0263	0.0207	0.0160	0.0198	0.0165	0.0218	0.0244	0.0699	0.0695	0.0627	0.0557	0.0366	0.0316
30.0	0.0207	0.0324	0.0323	0.0293	0.0304	0.0404	0.0419	0.0404	0.0385	0.0381	0.0374	0.0379	0.0389	0.0207	0.0324	0.0323	0.0293	0.0304	0.0404
35.0	0.0211	0.0282	0.0309	0.0263	0.0307	0.0334	0.0437	0.0466	0.0458	0.0479	0.0495	0.0495	0.0487	0.0211	0.0282	0.0309	0.0263	0.0307	0.0334
40.0	0.0386	0.0462	0.0331	0.0339	0.0365	0.0407	0.0394	0.0411	0.0407	0.0418	0.0431	0.0426	0.0392	0.0386	0.0462	0.0331	0.0339	0.0365	0.0407
45.0	0.0460	0.0438	0.0341	0.0311	0.0348	0.0373	0.0362	0.0335	0.0338	0.0363	0.0325	0.0340	0.0342	0.0460	0.0438	0.0341	0.0311	0.0348	0.0373
50.0	0.0394	0.0479	0.0513	0.0447	0.0538	0.0528	0.0483	0.0441	0.0444	0.0472	0.0488	0.0497	0.0507	0.0394	0.0479	0.0513	0.0447	0.0538	0.0528
55.0	0.0336	0.0411	0.0380	0.0471	0.0543	0.0508	0.0471	0.0445	0.0450	0.0484	0.0442	0.0383	0.0410	0.0336	0.0411	0.0380	0.0471	0.0543	0.0508
60.0	0.0158	0.0284	0.0361	0.0335	0.0487	0.0443	0.0442	0.0432	0.0451	0.0460	0.0451	0.0433	0.0435	0.0158	0.0284	0.0361	0.0335	0.0487	0.0443
70.0	-0.0186	-0.0121	-0.0057	-0.0070	0.0410	0.0451	0.0655	0.0604	0.0655	0.0641	0.0677	0.0701	0.0702	-0.0186	-0.0121	-0.0057	-0.0070	0.0410	0.0451
80.0	-0.0242	-0.0267	-0.0277	-0.0200	-0.0215	-0.0224	-0.0223	-0.0180	-0.0202	-0.0173	-0.0046	0.0281	0.0311	-0.0242	-0.0267	-0.0277	-0.0200	-0.0215	-0.0224
90.0	-0.0208	-0.0271	-0.0315	-0.0229	-0.0156	-0.0165	-0.0141	-0.0184	-0.0173	-0.0173	-0.0168	-0.0185	-0.0183	-0.0208	-0.0271	-0.0315	-0.0229	-0.0156	-0.0165

$C_{X,\delta h=25^\circ}(\alpha,\beta)$ [2]

	-30.0	**-25.0**	**-20.0**	**-15.0**	**-10.0**	**-8.0**	**-6.0**	**-4.0**	**-2.0**	**0.0**	**2.0**	**4.0**	**6.0**	**8.0**	**10.0**	**15.0**	**20.0**	**25.0**	**30.0**
-20.0	-0.0277	-0.0285	-0.0318	-0.0256	-0.0184	-0.0156	-0.0159	-0.0162	-0.0174	-0.0181	-0.0179	-0.0167	-0.0168	-0.0277	-0.0285	-0.0318	-0.0256	-0.0184	-0.0156
-15.0	-0.0314	-0.0310	-0.0259	-0.0191	-0.0161	-0.0157	-0.0162	-0.0173	-0.0189	-0.0193	-0.0186	-0.0186	-0.0170	-0.0314	-0.0310	-0.0259	-0.0191	-0.0161	-0.0157
-10.0	-0.0295	-0.0298	-0.0260	-0.0233	-0.0209	-0.0215	-0.0214	-0.0224	-0.0230	-0.0224	-0.0220	-0.0217	-0.0213	-0.0295	-0.0298	-0.0260	-0.0233	-0.0209	-0.0215
-5.0	-0.0148	-0.0153	-0.0163	-0.0150	-0.0167	-0.0173	-0.0185	-0.0189	-0.0193	-0.0196	-0.0192	-0.0185	-0.0179	-0.0148	-0.0153	-0.0163	-0.0150	-0.0167	-0.0173
0.0	-0.0136	-0.0149	-0.0143	-0.0136	-0.0168	-0.0178	-0.0182	-0.0188	-0.0197	-0.0202	-0.0196	-0.0188	-0.0180	-0.0136	-0.0149	-0.0143	-0.0136	-0.0168	-0.0178
5.0	-0.0029	-0.0010	-0.0003	-0.0005	-0.0004	-0.0006	-0.0017	-0.0027	-0.0033	-0.0033	-0.0033	-0.0024	-0.0014	-0.0029	-0.0010	-0.0003	-0.0005	-0.0004	-0.0006
10.0	0.0085	0.0104	0.0116	0.0121	0.0131	0.0125	0.0122	0.0119	0.0104	0.0099	0.0096	0.0106	0.0117	0.0085	0.0104	0.0116	0.0121	0.0131	0.0125
15.0	0.0145	0.0168	0.0196	0.0218	0.0225	0.0231	0.0238	0.0238	0.0231	0.0224	0.0224	0.0226	0.0227	0.0145	0.0168	0.0196	0.0218	0.0225	0.0231
20.0	0.0165	0.0170	0.0205	0.0226	0.0252	0.0245	0.0236	0.0232	0.0233	0.0221	0.0232	0.0241	0.0250	0.0165	0.0170	0.0205	0.0226	0.0252	0.0245
25.0	0.0138	0.0172	0.0157	0.0178	0.0226	0.0251	0.0264	0.0274	0.0271	0.0278	0.0275	0.0271	0.0267	0.0138	0.0172	0.0157	0.0178	0.0226	0.0251
30.0	0.0092	0.0122	0.0129	0.0165	0.0202	0.0253	0.0279	0.0295	0.0296	0.0301	0.0309	0.0306	0.0278	0.0092	0.0122	0.0129	0.0165	0.0202	0.0253
35.0	0.0099	0.0134	0.0162	0.0149	0.0208	0.0229	0.0273	0.0286	0.0303	0.0305	0.0286	0.0307	0.0292	0.0099	0.0134	0.0162	0.0149	0.0208	0.0229
40.0	0.0206	0.0202	0.0236	0.0246	0.0289	0.0293	0.0290	0.0320	0.0317	0.0328	0.0314	0.0305	0.0289	0.0206	0.0202	0.0236	0.0246	0.0289	0.0293
45.0	0.0257	0.0274	0.0266	0.0236	0.0266	0.0283	0.0236	0.0298	0.0268	0.0309	0.0307	0.0280	0.0238	0.0257	0.0274	0.0266	0.0236	0.0266	0.0283

$C_{X,lef}(\alpha,\beta)$ *[2]*

α	ΔCX,sb(α)
-10.0	-0.0490
-5.0	-0.0498
0.0	-0.0500
5.0	-0.0498
10.0	-0.0493
15.0	-0.0483
20.0	-0.0470
25.0	-0.0453
30.0	-0.0433
35.0	-0.0410
40.0	-0.0383
45.0	-0.0354
50.0	-0.0322
55.0	-0.0287
60.0	-0.0250
70.0	-0.0171
80.0	-0.0087
90.0	0.0000

$\Delta C_{X,sb}(\alpha)$ [10]

α	CXq(α)
-20.0	0.953
-15.0	0.953
-10.0	0.953
-5.0	1.550
0.0	1.900
5.0	2.460
10.0	2.920
15.0	3.300
20.0	2.760
25.0	2.050
30.0	1.500
35.0	1.490
40.0	1.830
45.0	1.210
50.0	1.330
55.0	1.610
60.0	0.910
70.0	3.430
80.0	0.617
90.0	0.273

$C_{Xq}(\alpha)$ [2]

α	ΔCXq,lef(α)
-20.0	-1.220
-15.0	-1.220
-10.0	-1.220
-5.0	-1.660
0.0	-1.620
5.0	-1.580
10.0	-1.960
15.0	-2.510
20.0	-2.040
25.0	-1.640
30.0	-0.824
35.0	-0.817
40.0	-1.100
45.0	-0.550

$\Delta C_{Xq,lef}(\alpha)$ [2]

	-30.0	-25.0	-20.0	-15.0	-10.0	-8.0	-6.0	-4.0	-2.0	0.0	2.0	4.0	6.0	8.0	10.0	15.0	20.0	25.0	30.0
-20.0	0.3677	0.3070	0.2460	0.1844	0.1062	0.0850	0.0677	0.0380	0.0186	0.0000	-0.0232	-0.0467	-0.0747	0.3677	0.3070	0.2460	0.1844	0.1062	0.0850
-15.0	0.4019	0.3220	0.2651	0.1964	0.1332	0.1039	0.0753	0.0442	0.0175	0.0000	-0.0188	-0.0402	-0.0681	0.4019	0.3220	0.2651	0.1964	0.1332	0.1039
-10.0	0.4367	0.3823	0.3185	0.2462	0.1513	0.1156	0.0760	0.0434	0.0161	0.0000	-0.0124	-0.0430	-0.0792	0.4367	0.3823	0.3185	0.2462	0.1513	0.1156
-5.0	0.5538	0.4778	0.3758	0.2818	0.1833	0.1449	0.1055	0.0662	0.0325	0.0000	-0.0420	-0.0763	-0.1177	0.5538	0.4778	0.3758	0.2818	0.1833	0.1449
0.0	0.6218	0.5258	0.4208	0.3088	0.2014	0.1553	0.1138	0.0726	0.0371	0.0000	-0.0394	-0.0764	-0.1191	0.6218	0.5258	0.4208	0.3088	0.2014	0.1553
5.0	0.6544	0.5514	0.4294	0.3124	0.2028	0.1607	0.1133	0.0767	0.0331	0.0000	-0.0383	-0.0819	-0.1233	0.6544	0.5514	0.4294	0.3124	0.2028	0.1607
10.0	0.6255	0.5185	0.4225	0.3065	0.2016	0.1597	0.1131	0.0748	0.0345	0.0000	-0.0383	-0.0786	-0.1204	0.6255	0.5185	0.4225	0.3065	0.2016	0.1597
15.0	0.5885	0.4665	0.3755	0.2875	0.1837	0.1473	0.1069	0.0652	0.0298	0.0000	-0.0383	-0.0770	-0.1200	0.5885	0.4665	0.3755	0.2875	0.1837	0.1473
20.0	0.5783	0.4633	0.3383	0.2563	0.1814	0.1504	0.1116	0.0703	0.0332	0.0000	-0.0248	-0.0558	-0.0984	0.5783	0.4633	0.3383	0.2563	0.1814	0.1504
25.0	0.5005	0.4195	0.3005	0.2295	0.1643	0.1409	0.1029	0.0654	0.0343	0.0000	-0.0335	-0.0677	-0.1028	0.5005	0.4195	0.3005	0.2295	0.1643	0.1409
30.0	0.3751	0.3161	0.2291	0.1411	0.0927	0.1057	0.0911	0.0630	0.0297	0.0000	-0.0306	-0.0647	-0.0906	0.3751	0.3161	0.2291	0.1411	0.0927	0.1057
35.0	0.3292	0.2952	0.2112	0.1472	0.0857	0.0581	0.0651	0.0563	0.0264	0.0000	-0.0214	-0.0513	-0.0806	0.3292	0.2952	0.2112	0.1472	0.0857	0.0581
40.0	0.4470	0.3885	0.3025	0.2135	0.0748	0.0531	0.0303	0.0360	0.0123	0.0000	-0.0320	-0.0484	-0.0664	0.4470	0.3885	0.3025	0.2135	0.0748	0.0531
45.0	0.1634	0.0894	0.0444	0.0894	0.0782	0.0612	0.0458	0.0398	0.0279	0.0000	-0.0868	-0.1048	-0.1365	0.1634	0.0894	0.0444	0.0894	0.0782	0.0612
50.0	0.1366	0.1036	0.0916	0.1556	0.0866	0.0785	0.0555	0.0399	0.0302	0.0000	-0.0178	-0.0791	-0.1060	0.1366	0.1036	0.0916	0.1556	0.0866	0.0785
55.0	0.1735	0.1355	0.1795	0.1725	0.1104	0.0926	0.0663	0.0460	0.0424	0.0000	-0.0087	-0.0718	-0.1065	0.1735	0.1355	0.1795	0.1725	0.1104	0.0926
60.0	0.2233	0.1713	0.2083	0.1883	0.1230	0.1051	0.0788	0.0546	0.0474	0.0000	-0.0048	-0.0571	-0.0840	0.2233	0.1713	0.2083	0.1883	0.1230	0.1051
70.0	0.2609	0.2279	0.1739	0.1469	0.1074	0.0941	0.0765	0.0564	0.0371	0.0000	-0.0113	-0.0300	-0.0477	0.2609	0.2279	0.1739	0.1469	0.1074	0.0941
80.0	0.3055	0.2595	0.2165	0.1635	0.1096	0.0871	0.0753	0.0498	0.0212	0.0000	-0.0203	-0.0361	-0.0655	0.3055	0.2595	0.2165	0.1635	0.1096	0.0871
90.0	0.3078	0.2498	0.1998	0.1568	0.1089	0.0843	0.0658	0.0446	0.0203	0.0000	-0.0263	-0.0418	-0.0611	0.3078	0.2498	0.1998	0.1568	0.1089	0.0843

$C_Y(\alpha,\beta)$ *[2]*

	-30.0	-25.0	-20.0	-15.0	-10.0	-8.0	-6.0	-4.0	-2.0	0.0	2.0	4.0	6.0	8.0	10.0	15.0	20.0	25.0	30.0
-20.0	0.3692	0.2991	0.2417	0.1692	0.1078	0.0874	0.0837	0.0572	0.0260	0.0000	-0.0258	-0.0592	-0.0863	0.3692	0.2991	0.2417	0.1692	0.1078	0.0874
-15.0	0.4368	0.3797	0.3249	0.2636	0.1826	0.1456	0.1068	0.0701	0.0336	0.0000	-0.0337	-0.0702	-0.1100	0.4368	0.3797	0.3249	0.2636	0.1826	0.1456
-10.0	0.5000	0.4441	0.3671	0.2896	0.1871	0.1475	0.1096	0.0757	0.0377	0.0000	-0.0339	-0.0708	-0.1108	0.5000	0.4441	0.3671	0.2896	0.1871	0.1475
-5.0	0.5683	0.4913	0.3913	0.2943	0.1926	0.1490	0.1125	0.0723	0.0369	0.0000	-0.0363	-0.0765	-0.1169	0.5683	0.4913	0.3913	0.2943	0.1926	0.1490
0.0	0.6293	0.5313	0.4173	0.3053	0.2024	0.1582	0.1116	0.0729	0.0374	0.0000	-0.0374	-0.0776	-0.1223	0.6293	0.5313	0.4173	0.3053	0.2024	0.1582
5.0	0.6397	0.5367	0.4267	0.3097	0.2042	0.1630	0.1174	0.0775	0.0394	0.0000	-0.0352	-0.0785	-0.1189	0.6397	0.5367	0.4267	0.3097	0.2042	0.1630
10.0	0.6132	0.5192	0.4302	0.3142	0.2080	0.1631	0.1187	0.0784	0.0370	0.0000	-0.0378	-0.0774	-0.1228	0.6132	0.5192	0.4302	0.3142	0.2080	0.1631
15.0	0.5416	0.4876	0.4126	0.3066	0.2023	0.1576	0.1168	0.0718	0.0377	0.0000	-0.0368	-0.0784	-0.1194	0.5416	0.4876	0.4126	0.3066	0.2023	0.1576
20.0	0.4750	0.3750	0.2950	0.2300	0.1576	0.1254	0.0919	0.0590	0.0282	0.0000	-0.0313	-0.0670	-0.1023	0.4750	0.3750	0.2950	0.2300	0.1576	0.1254
25.0	0.4878	0.3708	0.2508	0.1578	0.1176	0.1174	0.0893	0.0585	0.0286	0.0000	-0.0301	-0.0566	-0.0925	0.4878	0.3708	0.2508	0.1578	0.1176	0.1174
30.0	0.3436	0.3226	0.2286	0.1396	0.0825	0.0801	0.0757	0.0549	0.0287	0.0000	-0.0289	-0.0527	-0.0724	0.3436	0.3226	0.2286	0.1396	0.0825	0.0801
35.0	0.2437	0.2267	0.1757	0.1307	0.0776	0.0602	0.0535	0.0407	0.0181	0.0000	-0.0214	-0.0537	-0.0808	0.2437	0.2267	0.1757	0.1307	0.0776	0.0602
40.0	0.1976	0.1776	0.1566	0.1286	0.0906	0.0737	0.0593	0.0505	0.0188	0.0000	-0.0286	-0.0516	-0.0737	0.1976	0.1776	0.1566	0.1286	0.0906	0.0737
45.0	0.1741	0.1251	0.1201	0.1321	0.1110	0.0854	0.0550	0.0339	0.0183	0.0000	-0.0544	-0.0929	-0.1312	0.1741	0.1251	0.1201	0.1321	0.1110	0.0854

$C_{Y,lef}(\alpha,\beta)$ *[2]*

	-30.0	-25.0	-20.0	-15.0	-10.0	-8.0	-6.0	-4.0	-2.0	0.0	2.0	4.0	6.0	8.0	10.0	15.0	20.0	25.0	30.0
-20.0	0.3747	0.3113	0.2855	0.2184	0.1376	0.1109	0.0919	0.0626	0.0409	0.0190	-0.0063	-0.0245	-0.0503	0.3747	0.3113	0.2855	0.2184	0.1376	0.1109
-15.0	0.3972	0.3293	0.2807	0.2110	0.1468	0.1207	0.0914	0.0638	0.0383	0.1570	-0.0035	-0.0242	-0.0501	0.3972	0.3293	0.2807	0.2110	0.1468	0.1207
-10.0	0.4252	0.3679	0.3145	0.2356	0.1679	0.1287	0.0939	0.0618	0.0315	0.0160	-0.0010	-0.0307	-0.0636	0.4252	0.3679	0.3145	0.2356	0.1679	0.1287
-5.0	0.6008	0.5148	0.4158	0.3148	0.2050	0.1656	0.1276	0.0880	0.0509	0.0152	-0.0162	-0.0540	-0.0889	0.6008	0.5148	0.4158	0.3148	0.2050	0.1656
0.0	0.6628	0.5668	0.4528	0.3338	0.2168	0.1837	0.1428	0.1001	0.0611	0.0235	-0.0128	-0.0490	-0.0919	0.6628	0.5668	0.4528	0.3338	0.2168	0.1837
5.0	0.7024	0.6094	0.4894	0.3584	0.2246	0.1894	0.1486	0.1064	0.0665	0.0288	-0.0087	-0.0423	-0.0880	0.7024	0.6094	0.4894	0.3584	0.2246	0.1894
10.0	0.6715	0.5855	0.4715	0.3535	0.2293	0.1934	0.1492	0.1093	0.0660	0.0284	-0.0093	-0.0472	-0.0885	0.6715	0.5855	0.4715	0.3535	0.2293	0.1934
15.0	0.6465	0.5355	0.4395	0.3285	0.2189	0.1786	0.1375	0.0978	0.0578	0.0222	-0.0138	-0.0504	-0.0951	0.6465	0.5355	0.4395	0.3285	0.2189	0.1786
20.0	0.5873	0.4973	0.4013	0.3133	0.2083	0.1673	0.1319	0.0903	0.0480	0.0181	-0.0047	-0.0357	-0.0736	0.5873	0.4973	0.4013	0.3133	0.2083	0.1673
25.0	0.4995	0.4185	0.3215	0.2495	0.1705	0.1496	0.1162	0.0842	0.0470	0.0141	-0.1680	-0.0489	-0.0834	0.4995	0.4185	0.3215	0.2495	0.1705	0.1496
30.0	0.3789	0.3202	0.2295	0.1481	0.0986	0.1119	0.1010	0.0749	0.0431	0.0143	-0.0146	-0.0445	-0.0763	0.3789	0.3202	0.2295	0.1481	0.0986	0.1119
35.0	0.3286	0.2712	0.1966	0.0135	0.0709	0.0509	0.0626	0.0577	0.0316	0.0067	-0.0154	-0.0407	-0.0679	0.3286	0.2712	0.1966	0.0135	0.0709	0.0509
40.0	0.1812	0.1670	0.1194	0.0923	0.0535	0.0353	0.0269	0.0312	0.0149	0.0005	-0.0191	-0.0426	-0.0615	0.1812	0.1670	0.1194	0.0923	0.0535	0.0353
45.0	0.1054	0.0775	0.0595	0.0456	0.0346	0.0039	0.0015	0.0117	0.0198	-0.0250	-0.0668	-0.1326	-0.1557	0.1054	0.0775	0.0595	0.0456	0.0346	0.0039
50.0	0.0947	0.0717	0.0668	0.0668	0.0340	0.0321	0.0133	-0.0110	-0.0257	-0.0412	-0.0597	-0.1052	-0.1322	0.0947	0.0717	0.0668	0.0668	0.0340	0.0321
55.0	0.1264	0.1026	0.1346	0.1186	0.0546	0.0359	0.0249	-0.0136	-0.0270	-0.0544	-0.0589	-0.1026	-0.1340	0.1264	0.1026	0.1346	0.1186	0.0546	0.0359
60.0	0.1655	0.1444	0.1574	0.1305	0.0734	0.0424	0.0329	-0.0080	-0.0224	-0.0497	-0.0553	-0.0866	-0.1117	0.1655	0.1444	0.1574	0.1305	0.0734	0.0424
70.0	0.2561	0.2250	0.1688	0.1169	0.0820	0.0536	0.0358	0.0065	-0.0132	-0.0208	-0.0512	-0.0601	-0.0694	0.2561	0.2250	0.1688	0.1169	0.0820	0.0536
80.0	0.2946	0.2500	0.2010	0.1397	0.0941	0.0753	0.0500	0.0410	0.0101	-0.0081	-0.0439	-0.0617	-0.0783	0.2946	0.2500	0.2010	0.1397	0.0941	0.0753
90.0	0.2833	0.2290	0.1788	0.1498	0.0986	0.0765	0.0565	0.0339	0.0099	-0.0060	-0.0332	-0.0488	-0.0782	0.2833	0.2290	0.1788	0.1498	0.0986	0.0765

$C_{Y,\delta a=20^{\circ}}(\alpha,\beta)$ *[2]*

	-30.0	-25.0	-20.0	-15.0	-10.0	-8.0	-6.0	-4.0	-2.0	0.0	2.0	4.0	6.0	8.0	10.0	15.0	20.0	25.0	30.0
-20.0	0.3744	0.3091	0.2661	0.1722	0.1174	0.1099	0.0935	0.0642	0.0382	0.0131	-0.0183	-0.0450	-0.0761	0.3744	0.3091	0.2661	0.1722	0.1174	0.1099
-15.0	0.4225	0.3583	0.3168	0.2510	0.1890	0.1557	0.1197	0.0849	0.0507	0.0156	-0.0182	-0.0527	-0.0887	0.4225	0.3583	0.3168	0.2510	0.1890	0.1557
-10.0	0.4773	0.4065	0.3506	0.2736	0.1981	0.1627	0.1230	0.0890	0.0558	0.0217	-0.0149	-0.0503	-0.0857	0.4773	0.4065	0.3506	0.2736	0.1981	0.1627
-5.0	0.6313	0.5463	0.4403	0.3313	0.2102	0.1768	0.1372	0.0933	0.0578	0.0195	-0.0139	-0.0545	-0.0908	0.6313	0.5463	0.4403	0.3313	0.2102	0.1768
0.0	0.6663	0.5753	0.4543	0.3373	0.2131	0.1779	0.1399	0.0960	0.0568	0.0212	-0.0176	-0.0549	-0.0961	0.6663	0.5753	0.4543	0.3373	0.2131	0.1779
5.0	0.6707	0.5837	0.4637	0.3397	0.2209	0.1848	0.1448	0.1039	0.0586	0.0237	-0.0157	-0.0522	-0.0933	0.6707	0.5837	0.4637	0.3397	0.2209	0.1848
10.0	0.6522	0.5692	0.4652	0.3432	0.2262	0.1900	0.1453	0.1027	0.0634	0.0236	-0.0159	-0.0510	-0.0969	0.6522	0.5692	0.4652	0.3432	0.2262	0.1900
15.0	0.5976	0.5446	0.4646	0.3376	0.2223	0.1856	0.1413	0.1026	0.0581	0.0227	-0.0147	-0.0507	-0.0922	0.5976	0.5446	0.4646	0.3376	0.2223	0.1856
20.0	0.4910	0.4140	0.3430	0.2750	0.1837	0.1542	0.1180	0.0806	0.0496	0.0192	-0.0126	-0.0459	-0.0806	0.4910	0.4140	0.3430	0.2750	0.1837	0.1542
25.0	0.5028	0.3738	0.2828	0.1918	0.1354	0.1314	0.1043	0.0784	0.0446	0.0118	-0.0153	-0.0423	-0.0693	0.5028	0.3738	0.2828	0.1918	0.1354	0.1314
30.0	0.3466	0.3296	0.2386	0.1466	0.0865	0.0877	0.0796	0.0604	0.0385	0.0114	-0.0127	-0.0449	-0.0655	0.3466	0.3296	0.2386	0.1466	0.0865	0.0877
35.0	0.2987	0.2557	0.1647	0.1167	0.0601	0.0575	0.0556	0.0456	0.0247	0.0112	-0.0193	-0.0431	-0.0778	0.2987	0.2557	0.1647	0.1167	0.0601	0.0575
40.0	0.2026	0.1576	0.1446	0.1206	0.0718	0.0541	0.0509	0.0241	0.0104	-0.0101	-0.0308	-0.0584	-0.0725	0.2026	0.1576	0.1446	0.1206	0.0718	0.0541
45.0	0.1161	0.0661	0.0831	0.0791	0.0597	0.0353	0.0159	-0.0119	-0.0251	-0.0470	-0.0915	-0.1466	-0.1588	0.1161	0.0661	0.0831	0.0791	0.0597	0.0353

$C_{Y,\delta a=20°,left}(\alpha,\beta)$ *[2]*

	-30.0	-25.0	-20.0	-15.0	-10.0	-8.0	-6.0	-4.0	-2.0	0.0	2.0	4.0	6.0	8.0	10.0	15.0	20.0	25.0	30.0
-20.0	0.4105	0.3419	0.2886	0.2323	0.1815	0.1736	0.1669	0.1355	0.1173	0.0854	0.0681	0.0447	0.0229	0.4105	0.3419	0.2886	0.2323	0.1815	0.1736
-15.0	0.4387	0.3684	0.3134	0.2471	0.2072	0.1971	0.1732	0.1405	0.1144	0.0900	0.0732	0.0522	0.0271	0.4387	0.3684	0.3134	0.2471	0.2072	0.1971
-10.0	0.4771	0.4196	0.3728	0.3013	0.2258	0.2034	0.1718	0.1350	0.1043	0.0869	0.0717	0.0478	0.0128	0.4771	0.4196	0.3728	0.3013	0.2258	0.2034
-5.0	0.6048	0.5388	0.4738	0.3628	0.2599	0.2259	0.1889	0.1516	0.1180	0.0815	0.0510	0.0146	-0.0267	0.6048	0.5388	0.4738	0.3628	0.2599	0.2259
0.0	0.6388	0.5698	0.4998	0.3838	0.2736	0.2445	0.2017	0.1610	0.1240	0.0859	0.0530	0.0185	-0.0259	0.6388	0.5698	0.4998	0.3838	0.2736	0.2445
5.0	0.6674	0.6064	0.5234	0.4034	0.2880	0.2574	0.2112	0.1690	0.1264	0.0923	0.0574	0.0175	-0.0244	0.6674	0.6064	0.5234	0.4034	0.2880	0.2574
10.0	0.7015	0.6015	0.5295	0.4135	0.2963	0.2462	0.2034	0.1629	0.1207	0.0851	0.0511	0.0161	-0.0335	0.7015	0.6015	0.5295	0.4135	0.2963	0.2462
15.0	0.6695	0.5555	0.4755	0.3615	0.2584	0.2353	0.1984	0.1582	0.1181	0.0836	0.0477	0.0121	-0.0348	0.6695	0.5555	0.4755	0.3615	0.2584	0.2353
20.0	0.6703	0.5583	0.4533	0.3643	0.2524	0.2316	0.2094	0.1608	0.1334	0.0936	0.0626	0.0352	-0.0026	0.6703	0.5583	0.4533	0.3643	0.2524	0.2316
25.0	0.5815	0.4915	0.4035	0.3185	0.2299	0.2239	0.2040	0.1753	0.1364	0.0994	0.0661	0.0347	-0.0045	0.5815	0.4915	0.4035	0.3185	0.2299	0.2239
30.0	0.4141	0.3541	0.2781	0.2061	0.1323	0.1569	0.1737	0.1599	0.1358	0.1071	0.0709	0.0419	0.0115	0.4141	0.3541	0.2781	0.2061	0.1323	0.1569
35.0	0.3632	0.3442	0.2822	0.2202	0.1321	0.1160	0.1219	0.1340	0.1121	0.0885	0.0731	0.0471	0.0180	0.3632	0.3442	0.2822	0.2202	0.1321	0.1160
40.0	0.2365	0.2465	0.2035	0.1755	0.1214	0.0887	0.0909	0.0821	0.0781	0.0749	0.0468	0.0304	-0.0050	0.2365	0.2465	0.2035	0.1755	0.1214	0.0887
45.0	0.2134	0.1434	0.1134	0.1274	0.0965	0.0849	0.0798	0.0855	0.0669	0.0387	-0.0412	-0.0713	-0.0954	0.2134	0.1434	0.1134	0.1274	0.0965	0.0849
50.0	0.1606	0.1156	0.1116	0.1286	0.0946	0.0929	0.0803	0.0511	0.0476	0.0251	-0.0120	-0.0441	-0.0836	0.1606	0.1156	0.1116	0.1286	0.0946	0.0929
55.0	0.1895	0.1495	0.1905	0.1755	0.1235	0.0999	0.0769	0.0407	0.0366	0.0122	-0.0079	-0.0639	-0.0920	0.1895	0.1495	0.1905	0.1755	0.1235	0.0999
60.0	0.2183	0.1833	0.2173	0.1883	0.1375	0.1067	0.0846	0.0442	0.0311	0.0066	-0.0041	-0.0551	-0.0762	0.2183	0.1833	0.2173	0.1883	0.1375	0.1067
70.0	0.2689	0.2289	0.1989	0.1729	0.1163	0.0968	0.0850	0.0543	0.0272	0.0061	-0.0101	-0.0256	-0.0408	0.2689	0.2289	0.1989	0.1729	0.1163	0.0968
80.0	0.2915	0.2445	0.2045	0.1515	0.1075	0.0867	0.0696	0.0543	0.0293	0.0175	-0.0069	-0.0276	-0.0570	0.2915	0.2445	0.2045	0.1515	0.1075	0.0867
90.0	0.2988	0.2398	0.1898	0.1568	0.1042	0.0772	0.0616	0.0470	0.0240	0.0052	-0.0124	-0.0335	-0.0646	0.2988	0.2398	0.1898	0.1568	0.1042	0.0772

$C_{Y,\delta r=30^{\circ}}(\alpha,\beta)$ *[2]*

α	C_{Yr}(α)
-20.0	1.440
-15.0	1.440
-10.0	1.440
-5.0	1.050
0.0	0.981
5.0	0.939
10.0	0.999
15.0	0.981
20.0	0.819
25.0	0.483
30.0	0.590
35.0	1.210
40.0	-0.493
45.0	-1.040
50.0	-1.210
55.0	-1.580
60.0	-1.370
70.0	-0.026
80.0	-0.127
90.0	0.193

$C_{Yr}(\alpha)$ [2]

α	$\Delta C_{Yr,lef}$(α)
-20.0	-0.558
-15.0	-0.558
-10.0	-0.558
-5.0	-0.198
0.0	-0.107
5.0	0.027
10.0	-0.085
15.0	-0.046
20.0	0.331
25.0	0.215
30.0	0.430
35.0	-0.060
40.0	-0.374
45.0	-0.187

$\Delta C_{yr,lef}(\alpha)$ [2]

α	C_{Yp}(α)
-20.0	0.0333
-15.0	0.0333
-10.0	0.0333
-5.0	-0.1770
0.0	0.0055
5.0	0.0679
10.0	0.3100
15.0	0.2340
20.0	0.3440
25.0	0.3620
30.0	0.6110
35.0	0.5290
40.0	0.2980
45.0	-2.2700
50.0	0.9710
55.0	1.0200
60.0	2.9000
70.0	0.4510
80.0	-0.2940
90.0	-0.2610

$C_{Yp}(\alpha)$ [2]

α	$\Delta C_{Yp,lef}$(α)
-20.0	-0.1410
-15.0	-0.1410
-10.0	-0.1410
-5.0	0.0690
0.0	-0.1970
5.0	0.0601
10.0	-0.1210
15.0	-0.0520
20.0	0.0750
25.0	0.1060
30.0	-0.0770
35.0	-0.6420
40.0	-0.2550
45.0	-0.1280

$\Delta C_{yp,lef}(\alpha)$ [2]

	-30.0	-25.0	-20.0	-15.0	-10.0	-8.0	-6.0	-4.0	-2.0	0.0	2.0	4.0	6.0	8.0	10.0	15.0	20.0	25.0	30.0
-20.0	1.194	1.272	1.311	1.356	1.396	1.347	1.338	1.314	1.321	1.315	1.337	1.332	1.340	1.194	1.272	1.311	1.356	1.396	1.347
-15.0	0.996	1.057	1.090	1.121	1.128	1.129	1.131	1.143	1.158	1.171	1.177	1.142	1.148	0.996	1.057	1.090	1.121	1.128	1.129
-10.0	0.793	0.832	0.841	0.856	0.887	0.889	0.899	0.909	0.915	0.925	0.910	0.892	0.889	0.793	0.832	0.841	0.856	0.887	0.889
-5.0	0.410	0.410	0.420	0.425	0.451	0.464	0.474	0.472	0.474	0.469	0.460	0.454	0.447	0.410	0.410	0.420	0.425	0.451	0.464
0.0	0.180	0.155	0.135	0.130	0.141	0.149	0.154	0.153	0.151	0.155	0.154	0.151	0.147	0.180	0.155	0.135	0.130	0.141	0.149
5.0	-0.090	-0.130	-0.160	-0.180	-0.184	-0.186	-0.182	-0.187	-0.187	-0.189	-0.193	-0.191	-0.193	-0.090	-0.130	-0.160	-0.180	-0.184	-0.186
10.0	-0.340	-0.405	-0.460	-0.498	-0.511	-0.518	-0.526	-0.535	-0.534	-0.530	-0.532	-0.525	-0.520	-0.340	-0.405	-0.460	-0.498	-0.511	-0.518
15.0	-0.610	-0.665	-0.720	-0.770	-0.806	-0.818	-0.837	-0.849	-0.851	-0.856	-0.854	-0.855	-0.855	-0.610	-0.665	-0.720	-0.770	-0.806	-0.818
20.0	-0.870	-0.950	-1.015	-1.080	-1.122	-1.137	-1.149	-1.154	-1.156	-1.169	-1.151	-1.148	-1.146	-0.870	-0.950	-1.015	-1.080	-1.122	-1.137
25.0	-1.170	-1.235	-1.295	-1.355	-1.406	-1.405	-1.429	-1.441	-1.446	-1.446	-1.452	-1.449	-1.455	-1.170	-1.235	-1.295	-1.355	-1.406	-1.405
30.0	-1.315	-1.380	-1.445	-1.515	-1.581	-1.671	-1.697	-1.714	-1.719	-1.717	-1.720	-1.709	-1.684	-1.315	-1.380	-1.445	-1.515	-1.581	-1.671
35.0	-1.520	-1.570	-1.635	-1.710	-1.788	-1.818	-1.838	-1.889	-1.910	-1.909	-1.909	-1.893	-1.891	-1.520	-1.570	-1.635	-1.710	-1.788	-1.818
40.0	-1.600	-1.670	-1.730	-1.810	-1.891	-1.907	-1.911	-1.983	-2.016	-2.037	-1.932	-1.990	-1.969	-1.600	-1.670	-1.730	-1.810	-1.891	-1.907
45.0	-1.560	-1.615	-1.685	-1.750	-1.854	-1.991	-2.033	-1.939	-2.003	-1.985	-2.020	-2.040	-1.913	-1.560	-1.615	-1.685	-1.750	-1.854	-1.991
50.0	-1.300	-1.480	-1.600	-1.720	-1.880	-1.924	-1.913	-1.866	-1.879	-1.959	-1.992	-2.017	-2.030	-1.300	-1.480	-1.600	-1.720	-1.880	-1.924
55.0	-1.705	-1.795	-1.825	-1.850	-1.938	-1.959	-2.012	-1.999	-1.969	-2.010	-1.965	-1.847	-1.895	-1.705	-1.795	-1.825	-1.850	-1.938	-1.959
60.0	-1.700	-1.740	-1.730	-1.895	-1.933	-1.880	-1.907	-1.898	-1.892	-1.916	-1.936	-1.877	-1.933	-1.700	-1.740	-1.730	-1.895	-1.933	-1.880
70.0	-1.690	-1.740	-1.735	-1.830	-1.813	-1.864	-2.004	-1.950	-1.925	-1.957	-1.905	-1.833	-1.932	-1.690	-1.740	-1.735	-1.830	-1.813	-1.864
80.0	-1.935	-1.950	-1.945	-1.920	-1.872	-1.838	-1.908	-1.949	-1.826	-1.816	-1.837	-1.755	-1.848	-1.935	-1.950	-1.945	-1.920	-1.872	-1.838
90.0	-1.960	-1.935	-1.850	-1.870	-1.953	-2.036	-2.013	-1.968	-1.990	-1.978	-1.957	-1.956	-1.962	-1.960	-1.935	-1.850	-1.870	-1.953	-2.036

$C_{Z,\delta h=-25^{\circ}}(\alpha,\beta)$ *[2]*

	-30.0	-25.0	-20.0	-15.0	-10.0	-8.0	-6.0	-4.0	-2.0	0.0	2.0	4.0	6.0	8.0	10.0	15.0	20.0	25.0	30.0
-20.0	1.149	1.214	1.264	1.294	1.327	1.283	1.266	1.245	1.234	1.228	1.258	1.257	1.268	1.149	1.214	1.264	1.294	1.327	1.283
-15.0	0.948	0.995	1.021	1.047	1.043	1.040	1.037	1.042	1.050	1.059	1.066	1.048	1.051	0.948	0.995	1.021	1.047	1.043	1.040
-10.0	0.755	0.778	0.777	0.788	0.801	0.799	0.803	0.804	0.812	0.815	0.813	0.805	0.804	0.755	0.778	0.777	0.788	0.801	0.799
-5.0	0.320	0.320	0.327	0.332	0.350	0.365	0.370	0.372	0.357	0.356	0.352	0.349	0.343	0.320	0.320	0.327	0.332	0.350	0.365
0.0	0.086	0.061	0.041	0.039	0.052	0.056	0.062	0.062	0.061	0.064	0.062	0.061	0.058	0.086	0.061	0.041	0.039	0.052	0.056
5.0	-0.192	-0.232	-0.262	-0.279	-0.280	-0.284	-0.281	-0.287	-0.287	-0.287	-0.289	-0.291	-0.289	-0.192	-0.232	-0.262	-0.279	-0.280	-0.284
10.0	-0.455	-0.522	-0.575	-0.611	-0.624	-0.632	-0.641	-0.647	-0.650	-0.650	-0.651	-0.646	-0.642	-0.455	-0.522	-0.575	-0.611	-0.624	-0.632
15.0	-0.714	-0.784	-0.846	-0.898	-0.933	-0.949	-0.967	-0.976	-0.977	-0.980	-0.980	-0.978	-0.977	-0.714	-0.784	-0.846	-0.898	-0.933	-0.949
20.0	-1.005	-1.088	-1.161	-1.223	-1.263	-1.284	-1.299	-1.306	-1.302	-1.306	-1.292	-1.289	-1.287	-1.005	-1.088	-1.161	-1.223	-1.263	-1.284
25.0	-1.313	-1.378	-1.445	-1.509	-1.560	-1.566	-1.583	-1.590	-1.595	-1.594	-1.597	-1.595	-1.595	-1.313	-1.378	-1.445	-1.509	-1.560	-1.566
30.0	-1.418	-1.498	-1.578	-1.663	-1.746	-1.825	-1.848	-1.861	-1.861	-1.863	-1.863	-1.856	-1.836	-1.418	-1.498	-1.578	-1.663	-1.746	-1.825
35.0	-1.542	-1.629	-1.719	-1.819	-1.919	-1.977	-2.033	-2.064	-2.079	-2.090	-2.081	-2.075	-2.067	-1.542	-1.629	-1.719	-1.819	-1.919	-1.977
40.0	-1.671	-1.768	-1.862	-1.967	-2.074	-2.077	-2.151	-2.184	-2.199	-2.216	-2.192	-2.194	-2.084	-1.671	-1.768	-1.862	-1.967	-2.074	-2.077
45.0	-1.615	-1.577	-1.770	-1.963	-2.130	-2.217	-2.184	-2.216	-2.306	-2.263	-2.304	-2.304	-2.242	-1.615	-1.577	-1.770	-1.963	-2.130	-2.217
50.0	-1.406	-1.592	-1.716	-1.944	-2.026	-2.081	-2.081	-2.033	-2.031	-2.097	-2.118	-2.131	-2.142	-1.406	-1.592	-1.716	-1.944	-2.026	-2.081
55.0	-1.688	-1.738	-1.721	-1.809	-2.014	-2.048	-2.112	-2.100	-2.058	-2.088	-2.067	-1.972	-2.016	-1.688	-1.738	-1.721	-1.809	-2.014	-2.048
60.0	-1.724	-1.793	-1.800	-1.756	-1.949	-1.923	-1.975	-1.990	-2.005	-2.051	-2.021	-1.914	-1.956	-1.724	-1.793	-1.800	-1.756	-1.949	-1.923
70.0	-1.743	-1.754	-1.811	-1.781	-1.839	-1.897	-2.004	-1.999	-1.986	-2.027	-1.943	-1.835	-1.925	-1.743	-1.754	-1.811	-1.781	-1.839	-1.897
80.0	-1.935	-1.993	-1.979	-1.991	-1.928	-1.877	-1.931	-1.981	-1.892	-1.916	-1.938	-1.856	-1.943	-1.935	-1.993	-1.979	-1.991	-1.928	-1.877
90.0	-1.990	-2.009	-1.950	-1.979	-2.006	-2.085	-2.019	-2.007	-2.019	-1.998	-1.990	-2.004	-2.036	-1.990	-2.009	-1.950	-1.979	-2.006	-2.085

$C_{Z,\delta h=-10^{\circ}}(\alpha,\beta)$ *[2]*

	-30.0	**-25.0**	**-20.0**	**-15.0**	**-10.0**	**-8.0**	**-6.0**	**-4.0**	**-2.0**	**0.0**	**2.0**	**4.0**	**6.0**	**8.0**	**10.0**	**15.0**	**20.0**	**25.0**	**30.0**
-20.0	1.091	1.140	1.203	1.215	1.239	1.201	1.171	1.157	1.122	1.116	1.156	1.160	1.175	1.091	1.140	1.203	1.215	1.239	1.201
-15.0	0.905	0.939	0.959	0.980	0.967	0.960	0.954	0.951	0.953	0.959	0.966	0.964	0.965	0.905	0.939	0.959	0.980	0.967	0.960
-10.0	0.713	0.718	0.706	0.711	0.705	0.699	0.696	0.687	0.697	0.692	0.705	0.708	0.710	0.713	0.718	0.706	0.711	0.705	0.699
-5.0	0.265	0.265	0.270	0.275	0.288	0.305	0.306	0.311	0.285	0.287	0.286	0.285	0.280	0.265	0.265	0.270	0.275	0.288	0.305
0.0	-0.006	-0.030	-0.050	-0.050	-0.036	-0.035	-0.028	-0.027	-0.027	-0.025	-0.028	-0.028	-0.029	-0.006	-0.030	-0.050	-0.050	-0.036	-0.035
5.0	-0.275	-0.315	-0.345	-0.360	-0.359	-0.364	-0.362	-0.368	-0.368	-0.367	-0.368	-0.372	-0.368	-0.275	-0.315	-0.345	-0.360	-0.359	-0.364
10.0	-0.550	-0.620	-0.670	-0.705	-0.719	-0.727	-0.737	-0.741	-0.747	-0.750	-0.750	-0.746	-0.744	-0.550	-0.620	-0.670	-0.705	-0.719	-0.727
15.0	-0.825	-0.910	-0.980	-1.035	-1.069	-1.089	-1.105	-1.111	-1.111	-1.112	-1.112	-1.108	-1.106	-0.825	-0.910	-0.980	-1.035	-1.069	-1.089
20.0	-1.115	-1.200	-1.280	-1.340	-1.379	-1.405	-1.421	-1.431	-1.422	-1.418	-1.408	-1.405	-1.403	-1.115	-1.200	-1.280	-1.340	-1.379	-1.405
25.0	-1.375	-1.440	-1.510	-1.575	-1.626	-1.635	-1.650	-1.655	-1.659	-1.658	-1.660	-1.658	-1.655	-1.375	-1.440	-1.510	-1.575	-1.626	-1.635
30.0	-1.520	-1.615	-1.710	-1.810	-1.910	-1.977	-1.997	-2.006	-2.002	-2.008	-2.006	-2.001	-1.981	-1.520	-1.615	-1.710	-1.810	-1.910	-1.977
35.0	-1.555	-1.665	-1.770	-1.885	-1.998	-2.073	-2.152	-2.171	-2.182	-2.200	-2.186	-2.186	-2.174	-1.555	-1.665	-1.770	-1.885	-1.998	-2.073
40.0	-1.715	-1.830	-1.945	-2.065	-2.188	-2.183	-2.301	-2.310	-2.314	-2.328	-2.355	-2.321	-2.156	-1.715	-1.830	-1.945	-2.065	-2.188	-2.183
45.0	-1.625	-1.570	-1.785	-2.000	-2.178	-2.272	-2.210	-2.264	-2.358	-2.311	-2.353	-2.350	-2.299	-1.625	-1.570	-1.785	-2.000	-2.178	-2.272
50.0	-1.570	-1.735	-1.900	-2.050	-2.165	-2.254	-2.288	-2.258	-2.258	-2.326	-2.312	-2.290	-2.277	-1.570	-1.735	-1.900	-2.050	-2.165	-2.254
55.0	-1.775	-1.900	-1.970	-2.055	-2.176	-2.184	-2.223	-2.211	-2.196	-2.252	-2.235	-2.145	-2.182	-1.775	-1.900	-1.970	-2.055	-2.176	-2.184
60.0	-1.900	-1.935	-1.960	-1.995	-2.128	-2.111	-2.173	-2.183	-2.181	-2.208	-2.190	-2.094	-2.131	-1.900	-1.935	-1.960	-1.995	-2.128	-2.111
70.0	-1.930	-1.945	-1.940	-1.920	-1.929	-2.021	-2.161	-2.160	-2.120	-2.134	-2.085	-2.011	-2.108	-1.930	-1.945	-1.940	-1.920	-1.929	-2.021
80.0	-2.000	-2.045	-2.075	-2.080	-2.045	-1.994	-2.048	-2.092	-1.992	-2.004	-2.019	-1.930	-2.014	-2.000	-2.045	-2.075	-2.080	-2.045	-1.994
90.0	-1.960	-1.950	-1.900	-2.010	-2.060	-2.158	-2.112	-2.117	-2.145	-2.140	-2.113	-2.107	-2.101	-1.960	-1.950	-1.900	-2.010	-2.060	-2.158

$C_{Z,\delta h=0^{\circ}}(\alpha,\beta)$ *[2]*

	-30.0	-25.0	-20.0	-15.0	-10.0	-8.0	-6.0	-4.0	-2.0	0.0	2.0	4.0	6.0	8.0	10.0	15.0	20.0	25.0	30.0
-20.0	1.021	1.066	1.116	1.126	1.139	1.108	1.103	1.070	1.041	1.039	1.071	1.076	1.089	1.021	1.066	1.116	1.126	1.139	1.108
-15.0	0.815	0.838	0.846	0.863	0.854	0.848	0.844	0.841	0.846	0.849	0.856	0.852	0.853	0.815	0.838	0.846	0.863	0.854	0.848
-10.0	0.622	0.618	0.603	0.609	0.606	0.602	0.599	0.592	0.600	0.596	0.605	0.607	0.609	0.622	0.618	0.603	0.609	0.606	0.602
-5.0	0.181	0.176	0.179	0.184	0.198	0.212	0.213	0.215	0.202	0.205	0.202	0.198	0.192	0.181	0.176	0.179	0.184	0.198	0.212
0.0	-0.069	-0.100	-0.125	-0.131	-0.122	-0.120	-0.114	-0.112	-0.115	-0.114	-0.117	-0.117	-0.121	-0.069	-0.100	-0.125	-0.131	-0.122	-0.120
5.0	-0.339	-0.400	-0.444	-0.474	-0.480	-0.480	-0.481	-0.486	-0.487	-0.490	-0.490	-0.504	-0.496	-0.339	-0.400	-0.444	-0.474	-0.480	-0.480
10.0	-0.585	-0.630	-0.715	-0.768	-0.806	-0.810	-0.824	-0.833	-0.844	-0.849	-0.851	-0.842	-0.846	-0.585	-0.630	-0.715	-0.768	-0.806	-0.810
15.0	-0.843	-0.947	-1.031	-1.097	-1.133	-1.147	-1.167	-1.175	-1.182	-1.177	-1.171	-1.176	-1.175	-0.843	-0.947	-1.031	-1.097	-1.133	-1.147
20.0	-1.104	-1.200	-1.287	-1.356	-1.404	-1.431	-1.446	-1.453	-1.445	-1.442	-1.435	-1.430	-1.434	-1.104	-1.200	-1.287	-1.356	-1.404	-1.431
25.0	-1.362	-1.458	-1.560	-1.655	-1.741	-1.771	-1.771	-1.782	-1.794	-1.789	-1.787	-1.791	-1.775	-1.362	-1.458	-1.560	-1.655	-1.741	-1.771
30.0	-1.520	-1.630	-1.740	-1.854	-1.968	-2.037	-2.070	-2.081	-2.083	-2.082	-2.080	-2.070	-2.054	-1.520	-1.630	-1.740	-1.854	-1.968	-2.037
35.0	-1.690	-1.856	-2.006	-2.136	-2.252	-2.255	-2.260	-2.326	-2.317	-2.308	-2.355	-2.341	-2.302	-1.690	-1.856	-2.006	-2.136	-2.252	-2.255
40.0	-1.849	-1.949	-2.054	-2.169	-2.290	-2.361	-2.343	-2.375	-2.284	-2.411	-2.419	-2.402	-2.345	-1.849	-1.949	-2.054	-2.169	-2.290	-2.361
45.0	-1.590	-1.484	-1.741	-2.000	-2.193	-2.279	-2.186	-2.262	-2.395	-2.306	-2.373	-2.369	-2.295	-1.590	-1.484	-1.741	-2.000	-2.193	-2.279
50.0	-1.707	-1.891	-2.013	-2.255	-2.141	-2.200	-2.204	-2.165	-2.179	-2.261	-2.283	-2.281	-2.294	-1.707	-1.891	-2.013	-2.255	-2.141	-2.200
55.0	-1.735	-1.838	-1.844	-1.904	-2.133	-2.159	-2.217	-2.209	-2.184	-2.231	-2.186	-2.068	-2.115	-1.735	-1.838	-1.844	-1.904	-2.133	-2.159
60.0	-1.799	-1.889	-1.917	-1.942	-2.097	-2.065	-2.112	-2.123	-2.140	-2.185	-2.164	-2.065	-2.107	-1.799	-1.889	-1.917	-1.942	-2.097	-2.065
70.0	-1.753	-1.752	-1.797	-1.779	-1.987	-2.048	-2.157	-2.149	-2.048	-2.268	-2.178	-2.064	-2.142	-1.753	-1.752	-1.797	-1.779	-1.987	-2.048
80.0	-2.067	-2.123	-2.107	-2.145	-2.053	-1.911	-1.974	-2.024	-1.926	-1.940	-1.967	-1.891	-1.978	-2.067	-2.123	-2.107	-2.145	-2.053	-1.911
90.0	-2.008	-2.020	-1.955	-2.076	-2.026	-2.116	-2.061	-2.057	-2.073	-2.057	-2.034	-2.033	-2.030	-2.008	-2.020	-1.955	-2.076	-2.026	-2.116

$C_{Z,\delta h=10^{\circ}}(\alpha,\beta)$ [2]

	-30.0	**-25.0**	**-20.0**	**-15.0**	**-10.0**	**-8.0**	**-6.0**	**-4.0**	**-2.0**	**0.0**	**2.0**	**4.0**	**6.0**	**8.0**	**10.0**	**15.0**	**20.0**	**25.0**	**30.0**
-20.0	0.723	0.750	0.744	0.744	0.711	0.709	0.697	0.697	0.696	0.710	0.704	0.715	0.720	0.723	0.750	0.744	0.744	0.711	0.709
-15.0	0.512	0.495	0.461	0.465	0.470	0.470	0.471	0.467	0.483	0.476	0.481	0.472	0.475	0.512	0.495	0.461	0.465	0.470	0.470
-10.0	0.249	0.212	0.186	0.195	0.203	0.205	0.202	0.203	0.207	0.205	0.200	0.194	0.198	0.249	0.212	0.186	0.195	0.203	0.205
-5.0	0.100	0.090	0.090	0.095	0.111	0.122	0.122	0.122	0.121	0.125	0.121	0.114	0.107	0.100	0.090	0.090	0.095	0.111	0.122
0.0	-0.150	-0.190	-0.220	-0.235	-0.232	-0.224	-0.224	-0.221	-0.227	-0.228	-0.231	-0.232	-0.239	-0.150	-0.190	-0.220	-0.235	-0.232	-0.224
5.0	-0.385	-0.460	-0.515	-0.555	-0.566	-0.563	-0.566	-0.571	-0.572	-0.578	-0.578	-0.599	-0.588	-0.385	-0.460	-0.515	-0.555	-0.566	-0.563
10.0	-0.620	-0.690	-0.760	-0.830	-0.892	-0.891	-0.910	-0.924	-0.939	-0.946	-0.949	-0.936	-0.945	-0.620	-0.690	-0.760	-0.830	-0.892	-0.891
15.0	-0.865	-0.990	-1.090	-1.170	-1.208	-1.215	-1.239	-1.250	-1.269	-1.253	-1.240	-1.255	-1.255	-0.865	-0.990	-1.090	-1.170	-1.208	-1.215
20.0	-1.055	-1.195	-1.320	-1.430	-1.519	-1.550	-1.564	-1.558	-1.555	-1.554	-1.563	-1.549	-1.577	-1.055	-1.195	-1.320	-1.430	-1.519	-1.550
25.0	-1.360	-1.460	-1.570	-1.670	-1.763	-1.797	-1.794	-1.806	-1.820	-1.814	-1.811	-1.816	-1.798	-1.360	-1.460	-1.570	-1.670	-1.763	-1.797
30.0	-1.520	-1.635	-1.750	-1.870	-1.989	-2.058	-2.095	-2.107	-2.112	-2.108	-2.106	-2.094	-2.079	-1.520	-1.635	-1.750	-1.870	-1.989	-2.058
35.0	-1.615	-1.750	-1.875	-1.995	-2.111	-2.154	-2.200	-2.240	-2.242	-2.248	-2.261	-2.255	-2.231	-1.615	-1.750	-1.875	-1.995	-2.111	-2.154
40.0	-1.775	-1.875	-1.980	-2.095	-2.216	-2.287	-2.269	-2.301	-2.210	-2.337	-2.345	-2.328	-2.271	-1.775	-1.875	-1.980	-2.095	-2.216	-2.287
45.0	-1.740	-1.845	-1.925	-2.000	-2.130	-2.251	-2.286	-2.270	-2.239	-2.327	-2.289	-2.288	-2.312	-1.740	-1.845	-1.925	-2.000	-2.130	-2.251
50.0	-1.570	-1.740	-1.900	-2.050	-2.156	-2.216	-2.203	-2.158	-2.175	-2.261	-2.266	-2.262	-2.255	-1.570	-1.740	-1.900	-2.050	-2.156	-2.216
55.0	-1.700	-1.810	-1.880	-1.950	-2.043	-2.170	-2.184	-2.111	-2.204	-2.231	-2.203	-2.102	-2.135	-1.700	-1.810	-1.880	-1.950	-2.043	-2.170
60.0	-1.795	-1.895	-1.960	-2.020	-2.113	-2.094	-2.124	-2.124	-2.134	-2.174	-2.177	-2.103	-2.153	-1.795	-1.895	-1.960	-2.020	-2.113	-2.094
70.0	-1.780	-1.785	-1.790	-1.810	-1.873	-1.943	-2.059	-2.274	-2.000	-2.259	-2.211	-1.885	-2.221	-1.780	-1.785	-1.790	-1.810	-1.873	-1.943
80.0	-1.950	-1.980	-1.980	-1.960	-1.911	-1.881	-1.955	-2.005	-1.894	-1.899	-2.009	-2.014	-2.101	-1.950	-1.980	-1.980	-1.960	-1.911	-1.881
90.0	-1.925	-1.920	-1.870	-1.885	-1.969	-2.071	-2.029	-2.039	-2.070	-2.069	-2.026	-2.005	-2.000	-1.925	-1.920	-1.870	-1.885	-1.969	-2.071

$C_{Z,\delta h=25^\circ}(\alpha,\beta)$ [2]

	-30.0	**-25.0**	**-20.0**	**-15.0**	**-10.0**	**-8.0**	**-6.0**	**-4.0**	**-2.0**	**0.0**	**2.0**	**4.0**	**6.0**	**8.0**	**10.0**	**15.0**	**20.0**	**25.0**	**30.0**
-20.0	1.183	1.246	1.279	1.290	1.369	1.364	1.297	1.277	1.276	1.256	1.281	1.280	1.312	1.183	1.246	1.279	1.290	1.369	1.364
-15.0	0.960	1.018	1.055	1.093	1.058	1.039	1.031	1.019	1.025	1.035	1.033	1.042	1.043	0.960	1.018	1.055	1.093	1.058	1.039
-10.0	0.709	0.710	0.702	0.704	0.701	0.710	0.730	0.729	0.729	0.725	0.729	0.728	0.728	0.709	0.710	0.702	0.704	0.701	0.710
-5.0	0.222	0.216	0.231	0.227	0.240	0.243	0.244	0.249	0.249	0.248	0.248	0.242	0.239	0.222	0.216	0.231	0.227	0.240	0.243
0.0	-0.066	-0.084	-0.090	-0.105	-0.104	-0.099	-0.107	-0.099	-0.099	-0.100	-0.101	-0.104	-0.104	-0.066	-0.084	-0.090	-0.105	-0.104	-0.099
5.0	-0.317	-0.347	-0.390	-0.414	-0.420	-0.417	-0.417	-0.421	-0.424	-0.428	-0.421	-0.428	-0.422	-0.317	-0.347	-0.390	-0.414	-0.420	-0.417
10.0	-0.569	-0.619	-0.679	-0.703	-0.728	-0.765	-0.772	-0.774	-0.772	-0.774	-0.770	-0.767	-0.761	-0.569	-0.619	-0.679	-0.703	-0.728	-0.765
15.0	-0.853	-0.929	-1.018	-1.070	-1.098	-1.116	-1.114	-1.151	-1.142	-1.139	-1.135	-1.118	-1.112	-0.853	-0.929	-1.018	-1.070	-1.098	-1.116
20.0	-1.106	-1.168	-1.228	-1.314	-1.348	-1.359	-1.362	-1.352	-1.357	-1.355	-1.371	-1.376	-1.370	-1.106	-1.168	-1.228	-1.314	-1.348	-1.359
25.0	-1.314	-1.407	-1.465	-1.506	-1.564	-1.598	-1.628	-1.647	-1.646	-1.650	-1.642	-1.641	-1.618	-1.314	-1.407	-1.465	-1.506	-1.564	-1.598
30.0	-1.496	-1.510	-1.589	-1.692	-1.775	-1.814	-1.846	-1.875	-1.879	-1.883	-1.891	-1.876	-1.843	-1.496	-1.510	-1.589	-1.692	-1.775	-1.814
35.0	-1.594	-1.694	-1.807	-1.875	-1.957	-1.976	-2.032	-2.060	-2.070	-2.077	-2.038	-2.039	-2.028	-1.594	-1.694	-1.807	-1.875	-1.957	-1.976
40.0	-1.683	-1.755	-1.912	-1.999	-2.111	-2.149	-2.147	-2.204	-2.207	-2.204	-2.205	-2.195	-2.193	-1.683	-1.755	-1.912	-1.999	-2.111	-2.149
45.0	-1.664	-1.783	-1.859	-1.962	-2.030	-2.129	-1.917	-2.143	-2.050	-2.208	-2.201	-2.182	-2.077	-1.664	-1.783	-1.859	-1.962	-2.030	-2.129

$C_{Z,lef}(\alpha,\beta)$ *[2]*

α	ΔCz,sb(α)
-10.0	0.0087
-5.0	0.0044
0.0	0.0000
5.0	-0.0044
10.0	-0.0087
15.0	-0.0130
20.0	-0.0171
25.0	-0.0212
30.0	-0.0250
35.0	-0.0287
40.0	-0.0322
45.0	-0.0354
50.0	-0.0383
55.0	-0.0410
60.0	-0.0433
70.0	-0.0470
80.0	-0.0493
90.0	-0.0500

$\Delta C_{Z,sb}(\alpha)$ [10]

α	Czq(α)
-20.0	-23.90
-15.0	-23.90
-10.0	-23.90
-5.0	-29.50
0.0	-29.50
5.0	-30.50
10.0	-31.30
15.0	-30.10
20.0	-27.70
25.0	-28.20
30.0	-29.00
35.0	-29.80
40.0	-38.30
45.0	-35.30
50.0	-32.30
55.0	-27.30
60.0	-25.20
70.0	-27.30
80.0	-9.35
90.0	-2.16

$C_{Zq}(\alpha)$ [2]

α	ΔCzq,lef(α)
-20.0	15.10
-15.0	15.10
-10.0	15.10
-5.0	3.70
0.0	0.60
5.0	-1.30
10.0	0.30
15.0	-3.80
20.0	-4.60
25.0	-0.20
30.0	-2.70
35.0	-3.50
40.0	-1.30
45.0	-0.65

$\Delta C_{Zq,lef}(\alpha)$ [2]

	-30.0	-25.0	-20.0	-15.0	-10.0	-8.0	-6.0	-4.0	-2.0	0.0	2.0	4.0	6.0	8.0	10.0	15.0	20.0	25.0	30.0
-20.0	-0.0060	0.0065	0.0133	0.0217	0.0268	0.0238	0.0219	0.0179	0.0121	0.0000	-0.0096	-0.0167	-0.0210	-0.0060	0.0065	0.0133	0.0217	0.0268	0.0238
-15.0	-0.0048	0.0059	0.0178	0.0242	0.0187	0.0157	0.0130	0.0106	0.0061	0.0000	-0.0059	-0.0101	-0.0146	-0.0048	0.0059	0.0178	0.0242	0.0187	0.0157
-10.0	-0.0033	0.0095	0.0173	0.0184	0.0128	0.0100	0.0088	0.0056	0.0027	0.0000	-0.0047	-0.0077	-0.0118	-0.0033	0.0095	0.0173	0.0184	0.0128	0.0100
-5.0	0.0298	0.0245	0.0233	0.0211	0.0178	0.0144	0.0113	0.0072	0.0030	0.0000	-0.0039	-0.0081	-0.0123	0.0298	0.0245	0.0233	0.0211	0.0178	0.0144
0.0	0.0276	0.0285	0.0262	0.0225	0.0189	0.0151	0.0112	0.0075	0.0035	0.0000	-0.0035	-0.0075	-0.0114	0.0276	0.0285	0.0262	0.0225	0.0189	0.0151
5.0	0.0390	0.0337	0.0329	0.0282	0.0240	0.0195	0.0142	0.0096	0.0049	0.0000	-0.0047	-0.0094	-0.0138	0.0390	0.0337	0.0329	0.0282	0.0240	0.0195
10.0	0.0562	0.0558	0.0540	0.0455	0.0346	0.0285	0.0218	0.0147	0.0067	0.0000	-0.0068	-0.0143	-0.0219	0.0562	0.0558	0.0540	0.0455	0.0346	0.0285
15.0	0.0737	0.0670	0.0629	0.0568	0.0439	0.0361	0.0272	0.0185	0.0091	0.0000	-0.0087	-0.0183	-0.0286	0.0737	0.0670	0.0629	0.0568	0.0439	0.0361
20.0	0.0761	0.0708	0.0654	0.0551	0.0454	0.0377	0.0284	0.0185	0.0093	0.0000	-0.0101	-0.0180	-0.0293	0.0761	0.0708	0.0654	0.0551	0.0454	0.0377
25.0	0.0910	0.0713	0.0627	0.0513	0.0397	0.0331	0.0261	0.0175	0.0088	0.0000	-0.0089	-0.0174	-0.0263	0.0910	0.0713	0.0627	0.0513	0.0397	0.0331
30.0	0.0743	0.0429	0.0101	0.0110	0.0025	0.0152	0.0180	0.0126	0.0091	0.0000	-0.0066	-0.0124	-0.0160	0.0743	0.0429	0.0101	0.0110	0.0025	0.0152
35.0	0.0704	0.0530	0.0453	0.0184	0.0067	-0.0020	-0.0017	0.0028	-0.0011	0.0000	0.0018	0.0009	-0.0003	0.0704	0.0530	0.0453	0.0184	0.0067	-0.0020
40.0	0.0665	0.0605	0.0353	0.0132	0.0077	0.0092	0.0156	0.0096	0.0048	0.0000	-0.0077	-0.0117	-0.0123	0.0665	0.0605	0.0353	0.0132	0.0077	0.0092
45.0	0.0788	0.0563	0.0344	0.0234	0.0150	0.0140	0.0091	0.0089	0.0037	0.0000	-0.0052	-0.0082	-0.0124	0.0788	0.0563	0.0344	0.0234	0.0150	0.0140
50.0	0.0605	0.0568	0.0469	0.0340	0.0169	0.0146	0.0129	0.0089	0.0055	0.0000	-0.0022	-0.0065	-0.0090	0.0605	0.0568	0.0469	0.0340	0.0169	0.0146
55.0	0.0453	0.0323	0.0257	0.0140	-0.0003	0.0024	0.0042	0.0025	0.0025	0.0000	-0.0064	-0.0130	-0.0176	0.0453	0.0323	0.0257	0.0140	-0.0003	0.0024
60.0	0.0610	0.0413	0.0336	0.0230	0.0137	0.0122	0.0106	0.0064	0.0048	0.0000	-0.0026	-0.0049	-0.0095	0.0610	0.0413	0.0336	0.0230	0.0137	0.0122
70.0	0.0713	0.0603	0.0501	0.0191	0.0221	0.0190	0.0124	0.0097	0.0057	0.0000	-0.0066	-0.0102	-0.0143	0.0713	0.0603	0.0501	0.0191	0.0221	0.0190
80.0	0.0614	0.0507	0.0405	0.0309	0.0202	0.0167	0.0167	0.0078	0.0067	0.0000	-0.0039	-0.0075	-0.0124	0.0614	0.0507	0.0405	0.0309	0.0202	0.0167
90.0	0.0601	0.0460	0.0363	0.0253	0.0213	0.0183	0.0147	0.0091	0.0056	0.0000	-0.0006	-0.0012	-0.0086	0.0601	0.0460	0.0363	0.0253	0.0213	0.0183

$C_{l,\delta h=-25^\circ}(\alpha,\beta)$ [2]

	-30.0	-25.0	-20.0	-15.0	-10.0	-8.0	-6.0	-4.0	-2.0	0.0	2.0	4.0	6.0	8.0	10.0	15.0	20.0	25.0	30.0
-20.0	-0.0153	-0.0028	0.0091	0.0188	0.0234	0.0173	0.0106	0.0090	0.0041	0.0000	-0.0031	-0.0064	-0.0084	-0.0153	-0.0028	0.0091	0.0188	0.0234	0.0173
-15.0	-0.0132	-0.0028	0.0077	0.0145	0.0104	0.0084	0.0060	0.0039	0.0025	0.0000	-0.0029	-0.0050	-0.0080	-0.0132	-0.0028	0.0077	0.0145	0.0104	0.0084
-10.0	-0.0102	-0.0013	0.0094	0.0134	0.0107	0.0102	0.0081	0.0060	0.0011	0.0000	-0.0004	-0.0048	-0.0071	-0.0102	-0.0013	0.0094	0.0134	0.0107	0.0102
-5.0	0.0087	0.0153	0.0186	0.0194	0.0183	0.0156	0.0125	0.0088	0.0043	0.0000	-0.0038	-0.0087	-0.0126	0.0087	0.0153	0.0186	0.0194	0.0183	0.0156
0.0	0.0157	0.0190	0.0199	0.0207	0.0185	0.0153	0.0110	0.0071	0.0033	0.0000	-0.0030	-0.0067	-0.0107	0.0157	0.0190	0.0199	0.0207	0.0185	0.0153
5.0	0.0318	0.0307	0.0296	0.0272	0.0219	0.0180	0.0132	0.0089	0.0043	0.0000	-0.0037	-0.0081	-0.0126	0.0318	0.0307	0.0296	0.0272	0.0219	0.0180
10.0	0.0510	0.0510	0.0496	0.0422	0.0328	0.0271	0.0207	0.0139	0.0056	0.0000	-0.0065	-0.0137	-0.0207	0.0510	0.0510	0.0496	0.0422	0.0328	0.0271
15.0	0.0732	0.0679	0.0638	0.0574	0.0433	0.0357	0.0274	0.0187	0.0090	0.0000	-0.0088	-0.0188	-0.0284	0.0732	0.0679	0.0638	0.0574	0.0433	0.0357
20.0	0.0895	0.0815	0.0692	0.0579	0.0453	0.0354	0.0270	0.0171	0.0076	0.0000	-0.0085	-0.0177	-0.0271	0.0895	0.0815	0.0692	0.0579	0.0453	0.0354
25.0	0.0884	0.0785	0.0665	0.0536	0.0400	0.0326	0.0254	0.0181	0.0081	0.0000	-0.0082	-0.0165	-0.0258	0.0884	0.0785	0.0665	0.0536	0.0400	0.0326
30.0	0.0820	0.0505	0.0234	0.0143	0.0064	0.0189	0.0196	0.0133	0.0071	0.0000	-0.0057	-0.0118	-0.0165	0.0820	0.0505	0.0234	0.0143	0.0064	0.0189
35.0	0.0790	0.0610	0.0390	0.0095	0.0037	0.0029	0.0150	0.0143	0.0097	0.0000	0.0016	0.0003	-0.0018	0.0790	0.0610	0.0390	0.0095	0.0037	0.0029
40.0	0.0721	0.0573	0.0302	0.0087	0.0050	0.0104	0.0174	0.0124	0.0062	0.0000	-0.0075	-0.0108	-0.0131	0.0721	0.0573	0.0302	0.0087	0.0050	0.0104
45.0	0.0744	0.0576	0.0331	0.0248	0.0170	0.0179	0.0163	0.0191	0.0115	0.0000	-0.0042	-0.0108	-0.0148	0.0744	0.0576	0.0331	0.0248	0.0170	0.0179
50.0	0.0534	0.0411	0.0262	0.0238	0.0147	0.0144	0.0130	0.0091	0.0056	0.0000	-0.0051	-0.0123	-0.0152	0.0534	0.0411	0.0262	0.0238	0.0147	0.0144
55.0	0.0587	0.0422	0.0320	0.0261	0.0176	0.0151	0.0117	0.0065	0.0045	0.0000	-0.0040	-0.0081	-0.0133	0.0587	0.0422	0.0320	0.0261	0.0176	0.0151
60.0	0.0650	0.0481	0.0387	0.0301	0.0229	0.0192	0.0155	0.0094	0.0063	0.0000	-0.0029	-0.0055	-0.0111	0.0650	0.0481	0.0387	0.0301	0.0229	0.0192
70.0	0.0663	0.0538	0.0422	0.0307	0.0245	0.0220	0.0160	0.0128	0.0073	0.0000	-0.0050	-0.0069	-0.0120	0.0663	0.0538	0.0422	0.0307	0.0245	0.0220
80.0	0.0683	0.0554	0.0430	0.0325	0.0208	0.0149	0.0126	0.0036	0.0045	0.0000	-0.0045	-0.0086	-0.0134	0.0683	0.0554	0.0430	0.0325	0.0208	0.0149
90.0	0.0701	0.0534	0.0410	0.0293	0.0205	0.0188	0.0163	0.0110	0.0066	0.0000	0.0000	-0.0001	-0.0067	0.0701	0.0534	0.0410	0.0293	0.0205	0.0188

$C_{l,\delta h=0^\circ}(\alpha,\beta)$ *[2]*

	-30.0	-25.0	-20.0	-15.0	-10.0	-8.0	-6.0	-4.0	-2.0	0.0	2.0	4.0	6.0	8.0	10.0	15.0	20.0	25.0	30.0
-20.0	-0.0138	-0.0009	0.0106	0.0227	0.0248	0.0145	0.0112	0.0050	0.0031	0.0000	-0.0033	-0.0081	-0.0077	-0.0138	-0.0009	0.0106	0.0227	0.0248	0.0145
-15.0	-0.0061	0.0033	0.0140	0.0209	0.0157	0.0105	0.0066	0.0060	0.0027	0.0000	-0.0024	-0.0049	-0.0075	-0.0061	0.0033	0.0140	0.0209	0.0157	0.0105
-10.0	0.0000	0.0074	0.0131	0.0151	0.0139	0.0108	0.0088	0.0034	0.0008	0.0000	-0.0006	-0.0051	-0.0076	0.0000	0.0074	0.0131	0.0151	0.0139	0.0108
-5.0	0.0171	0.0196	0.0186	0.0204	0.0181	0.0142	0.0111	0.0081	0.0039	0.0000	-0.0035	-0.0071	-0.0109	0.0171	0.0196	0.0186	0.0204	0.0181	0.0142
0.0	0.0267	0.0261	0.0245	0.0215	0.0188	0.0147	0.0105	0.0058	0.0026	0.0000	-0.0029	-0.0065	-0.0108	0.0267	0.0261	0.0245	0.0215	0.0188	0.0147
5.0	0.0427	0.0376	0.0355	0.0285	0.0220	0.0180	0.0138	0.0099	0.0065	0.0000	-0.0061	-0.0111	-0.0143	0.0427	0.0376	0.0355	0.0285	0.0220	0.0180
10.0	0.0622	0.0596	0.0551	0.0454	0.0331	0.0266	0.0208	0.0146	0.0074	0.0000	-0.0067	-0.0158	-0.0221	0.0622	0.0596	0.0551	0.0454	0.0331	0.0266
15.0	0.0776	0.0696	0.0623	0.0544	0.0435	0.0372	0.0303	0.0213	0.0112	0.0000	-0.0110	-0.0219	-0.0303	0.0776	0.0696	0.0623	0.0544	0.0435	0.0372
20.0	0.0830	0.0794	0.0694	0.0558	0.0427	0.0332	0.0243	0.0172	0.0079	0.0000	-0.0102	-0.0202	-0.0215	0.0830	0.0794	0.0694	0.0558	0.0427	0.0332
25.0	0.0892	0.0760	0.0635	0.0524	0.0306	0.0214	0.0174	0.0136	0.0061	0.0000	-0.0077	-0.0142	-0.0202	0.0892	0.0760	0.0635	0.0524	0.0306	0.0214
30.0	0.0791	0.0452	0.0194	0.0041	-0.0046	0.0112	0.0109	0.0061	0.0031	0.0000	-0.0038	-0.0072	-0.0107	0.0791	0.0452	0.0194	0.0041	-0.0046	0.0112
35.0	0.0751	0.0563	0.0348	0.0071	-0.0030	-0.0077	-0.0002	0.0085	0.0016	0.0000	-0.0004	-0.0006	0.0005	0.0751	0.0563	0.0348	0.0071	-0.0030	-0.0077
40.0	0.0673	0.0583	0.0297	0.0050	-0.0002	0.0031	0.0106	0.0053	0.0055	0.0000	-0.0054	-0.0077	-0.0099	0.0673	0.0583	0.0297	0.0050	-0.0002	0.0031
45.0	0.0778	0.0625	0.0411	0.0326	0.0187	0.0163	0.0141	0.0165	0.0115	0.0000	-0.0021	-0.0079	-0.0105	0.0778	0.0625	0.0411	0.0326	0.0187	0.0163
50.0	0.0619	0.0519	0.0393	0.0326	0.0192	0.0177	0.0151	0.0103	0.0062	0.0000	-0.0047	-0.0115	-0.0151	0.0619	0.0519	0.0393	0.0326	0.0192	0.0177
55.0	0.0476	0.0336	0.0258	0.0149	0.0016	0.0045	0.0066	0.0046	0.0035	0.0000	-0.0078	-0.0157	-0.0215	0.0476	0.0336	0.0258	0.0149	0.0016	0.0045
60.0	0.0611	0.0428	0.0321	0.0263	0.0219	0.0165	0.0161	0.0102	0.0071	0.0000	-0.0042	-0.0081	-0.0142	0.0611	0.0428	0.0321	0.0263	0.0219	0.0165
70.0	0.0654	0.0502	0.0358	0.0224	0.0185	0.0175	0.0130	0.0112	0.0064	0.0000	-0.0064	-0.0097	-0.0146	0.0654	0.0502	0.0358	0.0224	0.0185	0.0175
80.0	0.0638	0.0506	0.0380	0.0287	0.0179	0.0138	0.0134	0.0050	0.0052	0.0000	-0.0028	-0.0052	-0.0101	0.0638	0.0506	0.0380	0.0287	0.0179	0.0138
90.0	0.0607	0.0486	0.0407	0.0305	0.0211	0.0180	0.0165	0.0116	0.0070	0.0000	-0.0008	-0.0017	-0.0198	0.0607	0.0486	0.0407	0.0305	0.0211	0.0180

$C_{l,\delta h=25^{\circ}}(\alpha,\beta)$ *[2]*

	-30.0	**-25.0**	**-20.0**	**-15.0**	**-10.0**	**-8.0**	**-6.0**	**-4.0**	**-2.0**	**0.0**	**2.0**	**4.0**	**6.0**	**8.0**	**10.0**	**15.0**	**20.0**	**25.0**	**30.0**
-20.0	-0.0205	-0.0170	-0.0076	0.0047	0.0150	0.0134	0.0008	0.0013	0.0027	0.0000	-0.0012	-0.0031	-0.0054	-0.0205	-0.0170	-0.0076	0.0047	0.0150	0.0134
-15.0	-0.0060	-0.0042	-0.0007	0.0033	0.0006	-0.0002	0.0022	0.0039	0.0019	0.0000	-0.0015	-0.0030	-0.0039	-0.0060	-0.0042	-0.0007	0.0033	0.0006	-0.0002
-10.0	-0.0081	-0.0061	-0.0001	0.0018	0.0034	0.0022	0.0016	0.0006	0.0000	0.0000	-0.0003	-0.0008	-0.0011	-0.0081	-0.0061	-0.0001	0.0018	0.0034	0.0022
-5.0	0.0106	0.0102	0.0104	0.0103	0.0093	0.0073	0.0052	0.0030	0.0012	0.0000	-0.0010	-0.0027	-0.0044	0.0106	0.0102	0.0104	0.0103	0.0093	0.0073
0.0	0.0238	0.0232	0.0224	0.0204	0.0168	0.0134	0.0098	0.0060	0.0029	0.0000	-0.0027	-0.0058	-0.0094	0.0238	0.0232	0.0224	0.0204	0.0168	0.0134
5.0	0.0390	0.0361	0.0353	0.0315	0.0248	0.0202	0.0149	0.0100	0.0049	0.0000	-0.0049	-0.0100	-0.0149	0.0390	0.0361	0.0353	0.0315	0.0248	0.0202
10.0	0.0485	0.0463	0.0430	0.0347	0.0263	0.0213	0.0155	0.0100	0.0046	0.0000	-0.0048	-0.0115	-0.0175	0.0485	0.0463	0.0430	0.0347	0.0263	0.0213
15.0	0.0462	0.0462	0.0450	0.0420	0.0297	0.0241	0.0172	0.0113	0.0052	0.0000	-0.0056	-0.0123	-0.0187	0.0462	0.0462	0.0450	0.0420	0.0297	0.0241
20.0	0.0480	0.0335	0.0290	0.0209	0.0158	0.0141	0.0095	0.0058	0.0005	0.0000	-0.0060	-0.0117	-0.0175	0.0480	0.0335	0.0290	0.0209	0.0158	0.0141
25.0	0.0731	0.0573	0.0371	0.0221	0.0233	0.0203	0.0175	0.0120	0.0061	0.0000	-0.0058	-0.0128	-0.0183	0.0731	0.0573	0.0371	0.0221	0.0233	0.0203
30.0	0.0752	0.0632	0.0428	0.0235	0.0106	0.0133	0.0138	0.0094	0.0075	0.0000	-0.0063	-0.0095	-0.0110	0.0752	0.0632	0.0428	0.0235	0.0106	0.0133
35.0	0.0528	0.0479	0.0422	0.0190	0.0078	0.0069	0.0117	0.0070	0.0022	0.0000	0.0014	-0.0057	-0.0076	0.0528	0.0479	0.0422	0.0190	0.0078	0.0069
40.0	0.0555	0.0435	0.0339	0.0173	0.0094	0.0156	0.0193	0.0110	0.0110	0.0000	-0.0074	-0.0126	-0.0194	0.0555	0.0435	0.0339	0.0173	0.0094	0.0156
45.0	0.0500	0.0493	0.0351	0.0306	0.0179	0.0158	0.0128	0.0077	0.0019	0.0000	-0.0118	-0.0124	-0.0150	0.0500	0.0493	0.0351	0.0306	0.0179	0.0158

$C_{l,,lef}(\alpha,\beta)$ *[2]*

	-30.0	**-25.0**	**-20.0**	**-15.0**	**-10.0**	**-8.0**	**-6.0**	**-4.0**	**-2.0**	**0.0**	**2.0**	**4.0**	**6.0**	**8.0**	**10.0**	**15.0**	**20.0**	**25.0**	**30.0**
-20.0	-0.0514	-0.0340	-0.0199	-0.0128	-0.0038	-0.0074	-0.0140	-0.0131	-0.0185	-0.0226	-0.0257	-0.0286	-0.0346	-0.0514	-0.0340	-0.0199	-0.0128	-0.0038	-0.0074
-15.0	-0.0492	-0.0362	-0.0231	-0.0148	-0.0196	-0.0227	-0.0262	-0.0264	-0.0300	-0.0327	-0.0336	-0.0357	-0.0382	-0.0492	-0.0362	-0.0231	-0.0148	-0.0196	-0.0227
-10.0	-0.0455	-0.0342	-0.0275	-0.0248	-0.0253	-0.0262	-0.0270	-0.0295	-0.0340	-0.0328	-0.0330	-0.0352	-0.0374	-0.0455	-0.0342	-0.0275	-0.0248	-0.0253	-0.0262
-5.0	-0.0343	-0.0302	-0.0257	-0.0229	-0.0241	-0.0269	-0.0300	-0.0333	-0.0367	-0.0401	-0.0439	-0.0479	-0.0510	-0.0343	-0.0302	-0.0257	-0.0229	-0.0241	-0.0269
0.0	-0.0403	-0.0371	-0.0326	-0.0301	-0.0322	-0.0341	-0.0372	-0.0413	-0.0450	-0.0481	-0.0509	-0.0535	-0.0569	-0.0403	-0.0371	-0.0326	-0.0301	-0.0322	-0.0341
5.0	-0.0245	-0.0250	-0.0235	-0.0246	-0.0291	-0.0328	-0.0372	-0.0419	-0.0466	-0.0511	-0.0548	-0.0580	-0.0612	-0.0245	-0.0250	-0.0235	-0.0246	-0.0291	-0.0328
10.0	-0.0029	-0.0024	-0.0025	-0.0089	-0.0183	-0.0233	-0.0288	-0.0364	-0.0435	-0.0499	-0.0555	-0.0606	-0.0663	-0.0029	-0.0024	-0.0025	-0.0089	-0.0183	-0.0233
15.0	0.0159	0.0146	0.0122	0.0064	-0.0067	-0.0134	-0.0213	-0.0312	-0.0400	-0.0491	-0.0575	-0.0655	-0.0728	0.0159	0.0146	0.0122	0.0064	-0.0067	-0.0134
20.0	0.0072	0.0043	0.0036	0.0061	0.0024	-0.0055	-0.0139	-0.0230	-0.0324	-0.0418	-0.0517	-0.0608	-0.0691	0.0072	0.0043	0.0036	0.0061	0.0024	-0.0055
25.0	0.0298	0.0260	0.0239	0.0159	0.0048	-0.0023	-0.0103	-0.0200	-0.0285	-0.0372	-0.0452	-0.0534	-0.0615	0.0298	0.0260	0.0239	0.0159	0.0048	-0.0023
30.0	0.0402	0.0079	-0.0150	-0.0076	-0.0198	-0.0107	-0.0124	-0.0195	-0.0246	-0.0308	-0.0364	-0.0431	-0.0458	0.0402	0.0079	-0.0150	-0.0076	-0.0198	-0.0107
35.0	0.0411	0.0228	0.0122	-0.0144	-0.0121	-0.0144	-0.0070	-0.0113	-0.0173	-0.0256	-0.0252	-0.0271	-0.0259	0.0411	0.0228	0.0122	-0.0144	-0.0121	-0.0144
40.0	0.0448	0.0282	0.0070	-0.0154	-0.0125	-0.0032	0.0015	-0.0028	-0.0088	-0.0166	-0.0247	-0.0281	-0.0318	0.0448	0.0282	0.0070	-0.0154	-0.0125	-0.0032
45.0	0.0573	0.0412	0.0175	0.0104	0.0029	0.0013	-0.0006	-0.0016	-0.0024	-0.0122	-0.0176	-0.0204	-0.0249	0.0573	0.0412	0.0175	0.0104	0.0029	0.0013
50.0	0.0408	0.0297	0.0203	0.0187	0.0065	0.0054	0.0039	0.0000	-0.0024	-0.0076	-0.0136	-0.0225	-0.0256	0.0408	0.0297	0.0203	0.0187	0.0065	0.0054
55.0	0.0472	0.0296	0.0244	0.0185	0.0088	0.0059	0.0018	-0.0021	-0.0043	-0.0095	-0.0138	-0.0199	-0.0232	0.0472	0.0296	0.0244	0.0185	0.0088	0.0059
60.0	0.0517	0.0350	0.0294	0.0209	0.0116	0.0073	0.0022	-0.0016	-0.0043	-0.0092	-0.0128	-0.0166	-0.0208	0.0517	0.0350	0.0294	0.0209	0.0116	0.0073
70.0	0.0418	0.0409	0.0299	0.0197	0.0083	0.0083	-0.0022	-0.0047	-0.0054	-0.0075	-0.0133	-0.0143	-0.0194	0.0418	0.0409	0.0299	0.0197	0.0083	0.0083
80.0	0.0598	0.0465	0.0369	0.0275	0.0143	0.0109	0.0073	0.0030	0.0009	-0.0041	-0.0087	-0.0154	-0.0158	0.0598	0.0465	0.0369	0.0275	0.0143	0.0109
90.0	0.0716	0.0532	0.0410	0.0327	0.0192	0.0153	0.0115	0.0086	0.0047	0.0022	-0.0025	-0.0052	-0.0090	0.0716	0.0532	0.0410	0.0327	0.0192	0.0153

$C_{l,\delta a=20^{\circ}}(\alpha,\beta)$ *[2]*

	-30.0	**-25.0**	**-20.0**	**-15.0**	**-10.0**	**-8.0**	**-6.0**	**-4.0**	**-2.0**	**0.0**	**2.0**	**4.0**	**6.0**	**8.0**	**10.0**	**15.0**	**20.0**	**25.0**	**30.0**
-20.0	-0.0536	-0.0402	-0.0309	-0.0204	-0.0147	-0.0228	-0.0244	-0.0228	-0.0227	-0.0233	-0.0231	-0.0256	-0.0288	-0.0536	-0.0402	-0.0309	-0.0204	-0.0147	-0.0228
-15.0	-0.0467	-0.0455	-0.0445	-0.0424	-0.0378	-0.0356	-0.0333	-0.0288	-0.0289	-0.0312	-0.0329	-0.0333	-0.0344	-0.0467	-0.0455	-0.0445	-0.0424	-0.0378	-0.0356
-10.0	-0.0492	-0.0481	-0.0412	-0.0414	-0.0387	-0.0366	-0.0380	-0.0385	-0.0396	-0.0404	-0.0408	-0.0411	-0.0417	-0.0492	-0.0481	-0.0412	-0.0414	-0.0387	-0.0366
-5.0	-0.0413	-0.0441	-0.0422	-0.0401	-0.0440	-0.0452	-0.0463	-0.0487	-0.0502	-0.0518	-0.0527	-0.0531	-0.0544	-0.0413	-0.0441	-0.0422	-0.0401	-0.0440	-0.0452
0.0	-0.0293	-0.0290	-0.0305	-0.0311	-0.0352	-0.0385	-0.0408	-0.0448	-0.0484	-0.0510	-0.0539	-0.0566	-0.0597	-0.0293	-0.0290	-0.0305	-0.0311	-0.0352	-0.0385
5.0	-0.0163	-0.0186	-0.0172	-0.0202	-0.0269	-0.0314	-0.0362	-0.0412	-0.0472	-0.0525	-0.0572	-0.0616	-0.0659	-0.0163	-0.0186	-0.0172	-0.0202	-0.0269	-0.0314
10.0	0.0036	0.0005	-0.0038	-0.0210	-0.0191	-0.0233	-0.0289	-0.0341	-0.0401	-0.0444	-0.0491	-0.0541	-0.0588	0.0036	0.0005	-0.0038	-0.0210	-0.0191	-0.0233
15.0	-0.0058	-0.0057	-0.0052	-0.0078	-0.0145	-0.0184	-0.0254	-0.0310	-0.0367	-0.0436	-0.0478	-0.0515	-0.0573	-0.0058	-0.0057	-0.0052	-0.0078	-0.0145	-0.0184
20.0	0.0088	-0.0020	-0.0015	-0.0031	-0.0133	-0.0143	-0.0168	-0.0216	-0.0258	-0.0297	-0.0350	-0.0413	-0.0437	0.0088	-0.0020	-0.0015	-0.0031	-0.0133	-0.0143
25.0	0.0311	0.0247	0.0081	-0.0099	-0.0018	-0.0003	-0.0083	-0.0141	-0.0193	-0.0258	-0.0303	-0.0366	-0.0414	0.0311	0.0247	0.0081	-0.0099	-0.0018	-0.0003
30.0	0.0396	0.0318	0.0165	0.0032	-0.0064	-0.0023	-0.0095	-0.0132	-0.0196	-0.0222	-0.0317	-0.0356	-0.0360	0.0396	0.0318	0.0165	0.0032	-0.0064	-0.0023
35.0	0.0291	0.0248	0.0227	0.0010	-0.0062	-0.0094	-0.0048	-0.0107	-0.0179	-0.0204	-0.0242	-0.0259	-0.0298	0.0291	0.0248	0.0227	0.0010	-0.0062	-0.0094
40.0	0.0373	0.0282	0.0154	0.0024	-0.0030	0.0058	0.0025	0.0027	0.0008	-0.0143	-0.0160	-0.0273	-0.0351	0.0373	0.0282	0.0154	0.0024	-0.0030	0.0058
45.0	0.0448	0.0399	0.0299	0.0212	0.0077	0.0046	0.0038	0.0007	-0.0049	-0.0110	-0.0147	-0.0219	-0.0223	0.0448	0.0399	0.0299	0.0212	0.0077	0.0046

$C_{l,\delta a=20°,lef}(\alpha,\beta)$ *[2]*

	-30.0	-25.0	-20.0	-15.0	-10.0	-8.0	-6.0	-4.0	-2.0	0.0	2.0	4.0	6.0	8.0	10.0	15.0	20.0	25.0	30.0
-20.0	-0.0115	0.0042	0.0163	0.0276	0.0350	0.0349	0.0321	0.0301	0.0236	0.0201	0.0144	0.0139	0.0127	-0.0115	0.0042	0.0163	0.0276	0.0350	0.0349
-15.0	-0.0078	0.0048	0.0176	0.0233	0.0242	0.0247	0.0255	0.0227	0.0197	0.0176	0.0152	0.0133	0.0105	-0.0078	0.0048	0.0176	0.0233	0.0242	0.0247
-10.0	-0.0057	0.0055	0.0169	0.0209	0.0237	0.0252	0.0265	0.0243	0.0202	0.0184	0.0169	0.0128	0.0110	-0.0057	0.0055	0.0169	0.0209	0.0237	0.0252
-5.0	0.0261	0.0317	0.0343	0.0331	0.0311	0.0312	0.0290	0.0253	0.0205	0.0154	0.0112	0.0073	0.0032	0.0261	0.0317	0.0343	0.0331	0.0311	0.0312
0.0	0.0292	0.0329	0.0339	0.0330	0.0294	0.0299	0.0262	0.0221	0.0182	0.0146	0.0112	0.0079	0.0036	0.0292	0.0329	0.0339	0.0330	0.0294	0.0299
5.0	0.0416	0.0436	0.0436	0.0400	0.0336	0.0320	0.0277	0.0236	0.0189	0.0144	0.0103	0.0062	0.0014	0.0416	0.0436	0.0436	0.0400	0.0336	0.0320
10.0	0.0640	0.0640	0.0626	0.0552	0.0442	0.0401	0.0343	0.0280	0.0209	0.0137	0.0073	0.0006	-0.0069	0.0640	0.0640	0.0626	0.0552	0.0442	0.0401
15.0	0.0821	0.0771	0.0731	0.0654	0.0519	0.0482	0.0411	0.0329	0.0228	0.0135	0.0047	-0.0044	-0.0142	0.0821	0.0771	0.0731	0.0654	0.0519	0.0482
20.0	0.1088	0.0928	0.0808	0.0708	0.0530	0.0474	0.0412	0.0313	0.0225	0.0137	0.0056	-0.0032	-0.0122	0.1088	0.0928	0.0808	0.0708	0.0530	0.0474
25.0	0.0932	0.0838	0.0718	0.0611	0.0449	0.0427	0.0369	0.0309	0.0230	0.0147	0.0051	-0.0030	-0.0116	0.0932	0.0838	0.0718	0.0611	0.0449	0.0427
30.0	0.0818	0.0503	0.0234	0.0168	0.0045	0.0240	0.0269	0.0244	0.0213	0.0126	0.0080	0.0010	-0.0054	0.0818	0.0503	0.0234	0.0168	0.0045	0.0240
35.0	0.0742	0.0652	0.0432	0.0135	0.0084	0.0065	0.0201	0.0223	0.0178	0.0114	0.0109	0.0102	0.0092	0.0742	0.0652	0.0432	0.0135	0.0084	0.0065
40.0	0.0613	0.0606	0.0389	0.0117	0.0076	0.0121	0.0172	0.0169	0.0158	0.0059	0.0023	-0.0024	-0.0044	0.0613	0.0606	0.0389	0.0117	0.0076	0.0121
45.0	0.0819	0.0629	0.0399	0.0313	0.0223	0.0194	0.0223	0.0230	0.0133	0.0007	0.0011	-0.0062	-0.0097	0.0819	0.0629	0.0399	0.0313	0.0223	0.0194
50.0	0.0529	0.0439	0.0295	0.0243	0.0157	0.0155	0.0149	0.0117	0.0080	0.0026	-0.0042	-0.0081	-0.0144	0.0529	0.0439	0.0295	0.0243	0.0157	0.0155
55.0	0.0585	0.0435	0.0330	0.0265	0.0166	0.0148	0.0125	0.0086	0.0069	0.0019	-0.0034	-0.0064	-0.0133	0.0585	0.0435	0.0330	0.0265	0.0166	0.0148
60.0	0.0627	0.0475	0.0377	0.0297	0.0209	0.0184	0.0157	0.0104	0.0075	0.0015	-0.0028	-0.0051	-0.0113	0.0627	0.0475	0.0377	0.0297	0.0209	0.0184
70.0	0.0669	0.0563	0.0453	0.0343	0.0242	0.0219	0.0175	0.0125	0.0052	0.0008	-0.0010	-0.0064	-0.0112	0.0669	0.0563	0.0453	0.0343	0.0242	0.0219
80.0	0.0662	0.0552	0.0432	0.0323	0.0201	0.0165	0.0098	0.0100	0.0045	-0.0023	-0.0063	-0.0083	-0.0126	0.0662	0.0552	0.0432	0.0323	0.0201	0.0165
90.0	0.0670	0.0542	0.0400	0.0279	0.0184	0.0166	0.0112	0.0099	0.0079	0.0018	-0.0020	-0.0041	-0.0064	0.0670	0.0542	0.0400	0.0279	0.0184	0.0166

$C_{l,\delta r=30^{\circ}}(\alpha,\beta)$ *[2]*

α	Clr(α)
-20.0	-0.1550
-15.0	-0.1550
-10.0	-0.1550
-5.0	-0.2010
0.0	-0.0024
5.0	0.0880
10.0	0.2050
15.0	0.2200
20.0	0.3190
25.0	0.4370
30.0	0.6800
35.0	0.1000
40.0	0.4470
45.0	-0.3300
50.0	-0.0680
55.0	0.1180
60.0	0.0802
70.0	0.0529
80.0	0.0868
90.0	-0.0183

$C_{lr}(\alpha)$ *[2]*

α	ΔClβ(α)
-20.0	0.0000
-15.0	0.0000
-10.0	0.0000
-5.0	0.0000
0.0	0.0000
5.0	0.0000
10.0	0.0000
15.0	0.0007
20.0	0.0005
25.0	0.0003
30.0	0.0000
35.0	0.0000
40.0	0.0000
45.0	0.0000
50.0	0.0000
55.0	0.0000
60.0	0.0000
70.0	0.0000
80.0	0.0000
90.0	0.0000

$\Delta C_{l\beta}(\alpha)$ *[2]*

α	ΔClr,lef(α)
-20.0	0.0290
-15.0	0.0290
-10.0	0.0290
-5.0	0.1750
0.0	0.0665
5.0	0.0360
10.0	0.0070
15.0	0.0660
20.0	0.2010
25.0	0.0060
30.0	-0.0680
35.0	-0.5370
40.0	-0.7870
45.0	-0.3940

$\Delta C_{lr,lef}(\alpha)$ *[2]*

α	Clp(α)
-20.0	-0.366
-15.0	-0.366
-10.0	-0.366
-5.0	-0.377
0.0	-0.345
5.0	-0.434
10.0	-0.408
15.0	-0.388
20.0	-0.329
25.0	-0.294
30.0	-0.230
35.0	-0.210
40.0	-0.120
45.0	-0.100
50.0	-0.100
55.0	-0.120
60.0	-0.140
70.0	-0.100
80.0	-0.150
90.0	-0.200

$C_{lp}(\alpha)$ *[2]*

α	ΔClp,lef(α)
-20.0	0.006
-15.0	0.006
-10.0	0.006
-5.0	0.018
0.0	-0.100
5.0	0.020
10.0	0.058
15.0	0.087
20.0	0.027
25.0	-0.056
30.0	-0.082
35.0	0.362
40.0	0.194
45.0	0.097

$\Delta C_{lp,lef}(\alpha)$ *[2]*

	-30.0	-25.0	-20.0	-15.0	-10.0	-8.0	-6.0	-4.0	-2.0	0.0	2.0	4.0	6.0	8.0	10.0	15.0	20.0	25.0	30.0
-20.0	0.2059	0.1937	0.1918	0.1850	0.1692	0.1693	0.1770	0.1746	0.1742	0.1750	0.1721	0.1758	0.1801	0.2059	0.1937	0.1918	0.1850	0.1692	0.1693
-15.0	0.1698	0.1650	0.1733	0.1723	0.1533	0.1618	0.1639	0.1607	0.1597	0.1584	0.1589	0.1615	0.1573	0.1698	0.1650	0.1733	0.1723	0.1533	0.1618
-10.0	0.1426	0.1579	0.1807	0.1641	0.1533	0.1586	0.1595	0.1629	0.1615	0.1590	0.1566	0.1534	0.1523	0.1426	0.1579	0.1807	0.1641	0.1533	0.1586
-5.0	0.1620	0.1770	0.1530	0.1450	0.1380	0.1365	0.1329	0.1269	0.1242	0.1216	0.1183	0.1212	0.1236	0.1620	0.1770	0.1530	0.1450	0.1380	0.1365
0.0	0.1530	0.1540	0.1480	0.1450	0.1445	0.1438	0.1430	0.1411	0.1412	0.1409	0.1410	0.1409	0.1403	0.1530	0.1540	0.1480	0.1450	0.1445	0.1438
5.0	0.1470	0.1530	0.1560	0.1570	0.1586	0.1595	0.1585	0.1577	0.1580	0.1580	0.1591	0.1584	0.1576	0.1470	0.1530	0.1560	0.1570	0.1586	0.1595
10.0	0.1500	0.1620	0.1650	0.1700	0.1746	0.1758	0.1768	0.1778	0.1833	0.1845	0.1840	0.1824	0.1811	0.1500	0.1620	0.1650	0.1700	0.1746	0.1758
15.0	0.1670	0.1760	0.1910	0.1960	0.2000	0.2012	0.2041	0.2062	0.2069	0.2087	0.2070	0.2066	0.2055	0.1670	0.1760	0.1910	0.1960	0.2000	0.2012
20.0	0.1510	0.1700	0.1900	0.2020	0.2073	0.2098	0.2122	0.2129	0.2137	0.2152	0.2133	0.2118	0.2109	0.1510	0.1700	0.1900	0.2020	0.2073	0.2098
25.0	0.1200	0.1470	0.1750	0.1940	0.2043	0.2028	0.2028	0.1991	0.1981	0.1978	0.1969	0.1957	0.1958	0.1200	0.1470	0.1750	0.1940	0.2043	0.2028
30.0	0.1080	0.0670	0.0980	0.1500	0.1704	0.1930	0.1985	0.2009	0.2022	0.2022	0.2021	0.2007	0.1972	0.1080	0.0670	0.0980	0.1500	0.1704	0.1930
35.0	0.0820	0.0470	0.0680	0.0810	0.1174	0.1233	0.1522	0.1713	0.1789	0.1814	0.1815	0.1799	0.1790	0.0820	0.0470	0.0680	0.0810	0.1174	0.1233
40.0	0.1130	0.0500	0.0600	0.0870	0.1131	0.1279	0.1341	0.1433	0.1483	0.1478	0.1291	0.1312	0.1245	0.1130	0.0500	0.0600	0.0870	0.1131	0.1279
45.0	0.0930	0.0660	0.0650	0.0530	0.0734	0.0914	0.0968	0.0848	0.0935	0.0922	0.0940	0.0838	0.0610	0.0930	0.0660	0.0650	0.0530	0.0734	0.0914
50.0	-0.0150	-0.0110	-0.0250	0.0150	0.0663	0.0644	0.0498	0.0407	0.0521	0.0745	0.0670	0.0453	0.0373	-0.0150	-0.0110	-0.0250	0.0150	0.0663	0.0644
55.0	0.0190	0.0170	-0.0860	-0.0040	0.0794	0.0494	0.0174	0.0530	0.0292	0.0713	0.0404	0.0007	-0.0024	0.0190	0.0170	-0.0860	-0.0040	0.0794	0.0494
60.0	-0.0360	-0.0230	-0.0750	-0.0600	-0.0627	-0.0705	-0.0556	-0.0534	-0.0549	-0.0540	-0.0618	-0.0674	-0.0828	-0.0360	-0.0230	-0.0750	-0.0600	-0.0627	-0.0705
70.0	-0.3070	-0.3080	-0.2850	-0.3050	-0.2769	-0.2648	-0.1828	-0.2115	-0.2032	-0.2244	-0.2264	-0.2195	-0.2054	-0.3070	-0.3080	-0.2850	-0.3050	-0.2769	-0.2648
80.0	-0.3650	-0.3980	-0.4030	-0.3870	-0.3411	-0.3344	-0.3425	-0.3455	-0.3254	-0.3389	-0.3522	-0.3187	-0.3262	-0.3650	-0.3980	-0.4030	-0.3870	-0.3411	-0.3344
90.0	-0.5260	-0.5270	-0.5150	-0.5040	-0.4900	-0.5157	-0.4801	-0.4970	-0.4831	-0.4723	-0.4830	-0.4818	-0.4911	-0.5260	-0.5270	-0.5150	-0.5040	-0.4900	-0.5157

$C_{m,\delta h=-25^{\circ}}(\alpha,\beta)$ [2]

	-30.0	-25.0	-20.0	-15.0	-10.0	-8.0	-6.0	-4.0	-2.0	0.0	2.0	4.0	6.0	8.0	10.0	15.0	20.0	25.0	30.0
-20.0	0.1469	0.1272	0.1210	0.1075	0.0798	0.0756	0.0800	0.0827	0.0853	0.0864	0.0782	0.0811	0.0821	0.1469	0.1272	0.1210	0.1075	0.0798	0.0756
-15.0	0.1087	0.0956	0.0947	0.0885	0.0581	0.0549	0.0505	0.0427	0.0378	0.0328	0.0353	0.0426	0.0481	0.1087	0.0956	0.0947	0.0885	0.0581	0.0549
-10.0	0.0784	0.0743	0.0852	0.0619	0.0390	0.0344	0.0290	0.0249	0.0177	0.0041	0.0169	0.0227	0.0280	0.0784	0.0743	0.0852	0.0619	0.0390	0.0344
-5.0	0.0570	0.0620	0.0440	0.0320	0.0170	0.0160	0.0120	0.0080	0.0100	0.0076	0.0070	0.0080	0.0100	0.0570	0.0620	0.0440	0.0320	0.0170	0.0160
0.0	0.0520	0.0540	0.0430	0.0390	0.0420	0.0410	0.0420	0.0430	0.0430	0.0430	0.0420	0.0430	0.0370	0.0520	0.0540	0.0430	0.0390	0.0420	0.0410
5.0	0.0520	0.0420	0.0500	0.0530	0.0540	0.0530	0.0540	0.0530	0.0520	0.0501	0.0520	0.0510	0.0510	0.0520	0.0420	0.0500	0.0530	0.0540	0.0530
10.0	0.0280	0.0350	0.0400	0.0400	0.0470	0.0480	0.0500	0.0500	0.0510	0.0553	0.0520	0.0530	0.0520	0.0280	0.0350	0.0400	0.0400	0.0470	0.0480
15.0	0.0430	0.0400	0.0530	0.0600	0.0630	0.0630	0.0670	0.0690	0.0720	0.0706	0.0710	0.0700	0.0700	0.0430	0.0400	0.0530	0.0600	0.0630	0.0630
20.0	0.0270	0.0250	0.0400	0.0500	0.0570	0.0560	0.0580	0.0600	0.0650	0.0674	0.0690	0.0660	0.0620	0.0270	0.0250	0.0400	0.0500	0.0570	0.0560
25.0	0.0100	0.0080	0.0230	0.0380	0.0470	0.0480	0.0480	0.0460	0.0480	0.0492	0.0460	0.0470	0.0440	0.0100	0.0080	0.0230	0.0380	0.0470	0.0480
30.0	0.0150	-0.0350	-0.0170	0.0030	0.0200	0.0400	0.0470	0.0490	0.0510	0.0528	0.0480	0.0480	0.0450	0.0150	-0.0350	-0.0170	0.0030	0.0200	0.0400
35.0	0.0160	-0.0270	-0.0340	-0.0240	-0.0060	0.0040	0.0160	0.0240	0.0310	0.0278	0.0280	0.0250	0.0120	0.0160	-0.0270	-0.0340	-0.0240	-0.0060	0.0040
40.0	0.0680	0.0190	-0.0160	-0.0130	-0.0080	-0.0070	-0.0060	-0.0050	-0.0060	-0.0094	-0.0220	-0.0220	-0.0440	0.0680	0.0190	-0.0160	-0.0130	-0.0080	-0.0070
45.0	0.0250	-0.0210	-0.0270	-0.0540	-0.0500	-0.0390	-0.0530	-0.0540	-0.0390	-0.0411	-0.0470	-0.0580	-0.0720	0.0250	-0.0210	-0.0270	-0.0540	-0.0500	-0.0390
50.0	-0.0111	0.0000	-0.0070	-0.0105	0.0073	-0.0085	-0.0371	-0.0519	-0.0379	-0.0129	-0.0221	-0.0455	-0.0542	-0.0111	0.0000	-0.0070	-0.0105	0.0073	-0.0085
55.0	0.0002	0.0043	-0.0936	-0.0425	0.0359	0.0134	-0.0110	-0.0169	-0.0113	0.0202	-0.0131	-0.0553	-0.0602	0.0002	0.0043	-0.0936	-0.0425	0.0359	0.0134
60.0	-0.0879	-0.0315	-0.0384	-0.1757	-0.0962	-0.1050	-0.0912	-0.0857	-0.0794	-0.0708	-0.0887	-0.1045	-0.1247	-0.0879	-0.0315	-0.0384	-0.1757	-0.0962	-0.1050
70.0	-0.3429	-0.3579	-0.3430	-0.3564	-0.3520	-0.3363	-0.2691	-0.3005	-0.2924	-0.3137	-0.3113	-0.3001	-0.2868	-0.3429	-0.3579	-0.3430	-0.3564	-0.3520	-0.3363
80.0	-0.4294	-0.4715	-0.4877	-0.4833	-0.4315	-0.4235	-0.4238	-0.4321	-0.4110	-0.4236	-0.4445	-0.4185	-0.4268	-0.4294	-0.4715	-0.4877	-0.4833	-0.4315	-0.4235
90.0	-0.6208	-0.6173	-0.6028	-0.5959	-0.5532	-0.5881	-0.5617	-0.5859	-0.5773	-0.5718	-0.5728	-0.5618	-0.5680	-0.6208	-0.6173	-0.6028	-0.5959	-0.5532	-0.5881

$C_{m,\delta h=-10^{\circ}}(\alpha,\beta)$ *[2]*

	-30.0	**-25.0**	**-20.0**	**-15.0**	**-10.0**	**-8.0**	**-6.0**	**-4.0**	**-2.0**	**0.0**	**2.0**	**4.0**	**6.0**	**8.0**	**10.0**	**15.0**	**20.0**	**25.0**	**30.0**
-20.0	0.0978	0.0719	0.0621	0.0430	0.0054	-0.0023	-0.0006	0.0062	0.0114	0.0127	0.0001	0.0023	0.0006	0.0978	0.0719	0.0621	0.0430	0.0054	-0.0023
-15.0	0.0560	0.0357	0.0264	0.0163	-0.0240	-0.0372	-0.0472	-0.0590	-0.0674	-0.0755	-0.0712	-0.0600	-0.0460	0.0560	0.0357	0.0264	0.0163	-0.0240	-0.0372
-10.0	0.0342	0.0167	0.0194	-0.0089	-0.0410	-0.0510	-0.0608	-0.0700	-0.0813	-0.1025	-0.0793	-0.0673	-0.0576	0.0342	0.0167	0.0194	-0.0089	-0.0410	-0.0510
-5.0	-0.0240	-0.0240	-0.0390	-0.0550	-0.0758	-0.0773	-0.0802	-0.0802	-0.0774	-0.0744	-0.0774	-0.0782	-0.0784	-0.0240	-0.0240	-0.0390	-0.0550	-0.0758	-0.0773
0.0	-0.0550	-0.0460	-0.0590	-0.0640	-0.0660	-0.0660	-0.0639	-0.0615	-0.0605	-0.0598	-0.0600	-0.0606	-0.0608	-0.0550	-0.0460	-0.0590	-0.0640	-0.0660	-0.0660
5.0	-0.0460	-0.0640	-0.0550	-0.0520	-0.0514	-0.0507	-0.0509	-0.0501	-0.0499	-0.0498	-0.0500	-0.0518	-0.0526	-0.0460	-0.0640	-0.0550	-0.0520	-0.0514	-0.0507
10.0	-0.0670	-0.0620	-0.0560	-0.0530	-0.0495	-0.0484	-0.0467	-0.0457	-0.0444	-0.0437	-0.0448	-0.0458	-0.0480	-0.0670	-0.0620	-0.0560	-0.0530	-0.0495	-0.0484
15.0	-0.0670	-0.0770	-0.0680	-0.0590	-0.0536	-0.0514	-0.0489	-0.0456	-0.0419	-0.0407	-0.0410	-0.0422	-0.0432	-0.0670	-0.0770	-0.0680	-0.0590	-0.0536	-0.0514
20.0	-0.0570	-0.0710	-0.0620	-0.0520	-0.0478	-0.0518	-0.0498	-0.0463	-0.0384	-0.0342	-0.0329	-0.0366	-0.0426	-0.0570	-0.0710	-0.0620	-0.0520	-0.0478	-0.0518
25.0	-0.0640	-0.0880	-0.0770	-0.0670	-0.0548	-0.0539	-0.0530	-0.0520	-0.0499	-0.0507	-0.0501	-0.0506	-0.0526	-0.0640	-0.0880	-0.0770	-0.0670	-0.0548	-0.0539
30.0	-0.0450	-0.1050	-0.0920	-0.0920	-0.0782	-0.0608	-0.0529	-0.0500	-0.0471	-0.0459	-0.0510	-0.0520	-0.0542	-0.0450	-0.1050	-0.0920	-0.0920	-0.0782	-0.0608
35.0	-0.0220	-0.0720	-0.0920	-0.0880	-0.0738	-0.0639	-0.0594	-0.0572	-0.0567	-0.0605	-0.0605	-0.0625	-0.0729	-0.0220	-0.0720	-0.0920	-0.0880	-0.0738	-0.0639
40.0	0.0450	0.0050	-0.0520	-0.0610	-0.0662	-0.0729	-0.0739	-0.0789	-0.0820	-0.0835	-0.0917	-0.0971	-0.1252	0.0450	0.0050	-0.0520	-0.0610	-0.0662	-0.0729
45.0	-0.0010	-0.0520	-0.0600	-0.0920	-0.0927	-0.0861	-0.1056	-0.0966	-0.0862	-0.0923	-0.0975	-0.1080	-0.1168	-0.0010	-0.0520	-0.0600	-0.0920	-0.0927	-0.0861
50.0	-0.0090	-0.0130	-0.0170	-0.0350	-0.0780	-0.0713	-0.0774	-0.0890	-0.0913	-0.0826	-0.0898	-0.1112	-0.1201	-0.0090	-0.0130	-0.0170	-0.0350	-0.0780	-0.0713
55.0	-0.0510	-0.0180	-0.0650	-0.0530	-0.0477	-0.0520	-0.0583	-0.0663	-0.0830	-0.0738	-0.0851	-0.1053	-0.1050	-0.0510	-0.0180	-0.0650	-0.0530	-0.0477	-0.0520
60.0	-0.1830	-0.1480	-0.1730	-0.1720	-0.1512	-0.1428	-0.1118	-0.1094	-0.1266	-0.1414	-0.1436	-0.1437	-0.1521	-0.1830	-0.1480	-0.1730	-0.1720	-0.1512	-0.1428
70.0	-0.3830	-0.3980	-0.3820	-0.3870	-0.3869	-0.3637	-0.2706	-0.2967	-0.2944	-0.3216	-0.3252	-0.3199	-0.3123	-0.3830	-0.3980	-0.3820	-0.3870	-0.3869	-0.3637
80.0	-0.4830	-0.5180	-0.5280	-0.5060	-0.4850	-0.4785	-0.4804	-0.4869	-0.4605	-0.4678	-0.4883	-0.4620	-0.4744	-0.4830	-0.5180	-0.5280	-0.5060	-0.4850	-0.4785
90.0	-0.6330	-0.6300	-0.6160	-0.6160	-0.6067	-0.6366	-0.6053	-0.6281	-0.6217	-0.6184	-0.6163	-0.6022	-0.6073	-0.6330	-0.6300	-0.6160	-0.6160	-0.6067	-0.6366

$C_{m,\delta h=0^{\circ}}(\alpha,\beta)$ *[2]*

	-30.0	**-25.0**	**-20.0**	**-15.0**	**-10.0**	**-8.0**	**-6.0**	**-4.0**	**-2.0**	**0.0**	**2.0**	**4.0**	**6.0**	**8.0**	**10.0**	**15.0**	**20.0**	**25.0**	**30.0**
-20.0	0.0200	-0.0036	-0.0107	-0.0334	-0.0778	-0.0944	-0.0926	-0.0855	-0.0815	-0.0835	-0.0955	-0.0930	-0.0943	0.0200	-0.0036	-0.0107	-0.0334	-0.0778	-0.0944
-15.0	-0.0153	-0.0385	-0.0525	-0.0743	-0.1233	-0.1376	-0.1466	-0.1551	-0.1663	-0.1719	-0.1683	-0.1568	-0.1437	-0.0153	-0.0385	-0.0525	-0.0743	-0.1233	-0.1376
-10.0	-0.0549	-0.0792	-0.0932	-0.1226	-0.1521	-0.1609	-0.1688	-0.1774	-0.1880	-0.2153	-0.1839	-0.1738	-0.1648	-0.0549	-0.0792	-0.0932	-0.1226	-0.1521	-0.1609
-5.0	-0.1120	-0.1240	-0.1520	-0.1680	-0.1830	-0.1880	-0.1910	-0.1920	-0.1890	-0.1888	-0.1900	-0.1930	-0.1930	-0.1120	-0.1240	-0.1520	-0.1680	-0.1830	-0.1880
0.0	-0.1170	-0.1270	-0.1520	-0.1590	-0.1600	-0.1600	-0.1590	-0.1570	-0.1620	-0.1610	-0.1620	-0.1630	-0.1670	-0.1170	-0.1270	-0.1520	-0.1590	-0.1600	-0.1600
5.0	-0.1050	-0.1330	-0.1440	-0.1550	-0.1550	-0.1550	-0.1550	-0.1550	-0.1580	-0.1606	-0.1610	-0.1620	-0.1570	-0.1050	-0.1330	-0.1440	-0.1550	-0.1550	-0.1550
10.0	-0.0970	-0.1120	-0.1220	-0.1350	-0.1420	-0.1420	-0.1510	-0.1530	-0.1570	-0.1548	-0.1550	-0.1520	-0.1530	-0.0970	-0.1120	-0.1220	-0.1350	-0.1420	-0.1420
15.0	-0.0970	-0.1180	-0.1330	-0.1510	-0.1520	-0.1500	-0.1550	-0.1550	-0.1520	-0.1452	-0.1480	-0.1550	-0.1550	-0.0970	-0.1180	-0.1330	-0.1510	-0.1520	-0.1500
20.0	-0.0620	-0.0830	-0.0970	-0.1060	-0.1340	-0.1420	-0.1380	-0.1340	-0.1300	-0.1264	-0.1260	-0.1260	-0.1510	-0.0620	-0.0830	-0.0970	-0.1060	-0.1340	-0.1420
25.0	-0.0750	-0.1030	-0.1130	-0.1080	-0.1370	-0.1440	-0.1530	-0.1540	-0.1540	-0.1530	-0.1550	-0.1500	-0.1500	-0.0750	-0.1030	-0.1130	-0.1080	-0.1370	-0.1440
30.0	-0.0880	-0.1680	-0.1650	-0.1720	-0.1710	-0.1550	-0.1500	-0.1470	-0.1440	-0.1440	-0.1450	-0.1460	-0.1530	-0.0880	-0.1680	-0.1650	-0.1720	-0.1710	-0.1550
35.0	-0.1050	-0.1611	-0.1862	-0.2095	-0.1951	-0.1760	-0.1514	-0.1444	-0.1427	-0.1411	-0.1450	-0.1513	-0.1565	-0.1050	-0.1611	-0.1862	-0.2095	-0.1951	-0.1760
40.0	-0.0438	-0.1079	-0.1281	-0.1485	-0.1405	-0.1272	-0.1301	-0.1367	-0.1555	-0.1450	-0.1543	-0.1595	-0.1527	-0.0438	-0.1079	-0.1281	-0.1485	-0.1405	-0.1272
45.0	-0.1448	-0.0931	-0.1319	-0.1793	-0.1518	-0.1264	-0.1053	-0.1575	-0.1807	-0.1411	-0.1635	-0.1655	-0.1635	-0.1448	-0.0931	-0.1319	-0.1793	-0.1518	-0.1264
50.0	-0.1530	-0.1330	-0.1280	-0.1470	-0.1077	-0.1030	-0.1111	-0.1154	-0.1161	-0.1008	-0.1060	-0.1254	-0.1273	-0.1530	-0.1330	-0.1280	-0.1470	-0.1077	-0.1030
55.0	-0.0760	-0.0630	-0.1520	-0.0570	-0.0075	-0.0460	-0.0865	-0.0614	-0.0976	-0.0679	-0.0922	-0.1253	-0.1221	-0.0760	-0.0630	-0.1520	-0.0570	-0.0075	-0.0460
60.0	-0.1710	-0.1200	-0.1350	-0.1400	-0.1588	-0.1634	-0.1455	-0.1444	-0.1512	-0.1556	-0.1653	-0.1719	-0.1866	-0.1710	-0.1200	-0.1350	-0.1400	-0.1588	-0.1634
70.0	-0.4001	-0.4044	-0.3789	-0.4050	-0.3419	-0.3364	-0.2610	-0.2714	-0.2201	-0.1983	-0.2363	-0.2655	-0.2695	-0.4001	-0.4044	-0.3789	-0.4050	-0.3419	-0.3364
80.0	-0.5082	-0.5338	-0.5333	-0.5253	-0.4877	-0.4848	-0.4902	-0.4970	-0.4677	-0.4721	-0.4929	-0.4669	-0.4776	-0.5082	-0.5338	-0.5333	-0.5253	-0.4877	-0.4848
90.0	-0.6368	-0.6326	-0.6174	-0.6217	-0.5909	-0.6214	-0.5906	-0.6146	-0.6099	-0.6083	-0.6080	-0.5958	-0.5979	-0.6368	-0.6326	-0.6174	-0.6217	-0.5909	-0.6214

$C_{m,\delta h=10^{\circ}}(\alpha,\beta)$ [2]

	-30.0	**-25.0**	**-20.0**	**-15.0**	**-10.0**	**-8.0**	**-6.0**	**-4.0**	**-2.0**	**0.0**	**2.0**	**4.0**	**6.0**	**8.0**	**10.0**	**15.0**	**20.0**	**25.0**	**30.0**
-20.0	-0.0818	-0.1023	-0.1060	-0.1334	-0.1866	-0.2149	-0.2128	-0.2055	-0.2030	-0.2093	-0.2204	-0.2176	-0.2185	-0.0818	-0.1023	-0.1060	-0.1334	-0.1866	-0.2149
-15.0	-0.1160	-0.1432	-0.1646	-0.2020	-0.2635	-0.2792	-0.2868	-0.2906	-0.3059	-0.3079	-0.3052	-0.2933	-0.2816	-0.1160	-0.1432	-0.1646	-0.2020	-0.2635	-0.2792
-10.0	-0.1527	-0.1845	-0.2168	-0.2480	-0.2740	-0.2816	-0.2874	-0.2952	-0.3025	-0.3391	-0.2988	-0.2907	-0.2825	-0.1527	-0.1845	-0.2168	-0.2480	-0.2740	-0.2816
-5.0	-0.1770	-0.2000	-0.2370	-0.2520	-0.2630	-0.2698	-0.2734	-0.2737	-0.2738	-0.2741	-0.2761	-0.2782	-0.2785	-0.1770	-0.2000	-0.2370	-0.2520	-0.2630	-0.2698
0.0	-0.1740	-0.1970	-0.2340	-0.2470	-0.2487	-0.2486	-0.2493	-0.2489	-0.2539	-0.2527	-0.2524	-0.2524	-0.2532	-0.1740	-0.1970	-0.2340	-0.2470	-0.2487	-0.2486
5.0	-0.1640	-0.1920	-0.2190	-0.2430	-0.2429	-0.2425	-0.2441	-0.2476	-0.2540	-0.2562	-0.2589	-0.2581	-0.2482	-0.1640	-0.1920	-0.2190	-0.2430	-0.2429	-0.2425
10.0	-0.1280	-0.1620	-0.1880	-0.2160	-0.2297	-0.2289	-0.2391	-0.2519	-0.2626	-0.2554	-0.2599	-0.2530	-0.2501	-0.1280	-0.1620	-0.1880	-0.2160	-0.2297	-0.2289
15.0	-0.1160	-0.1480	-0.1810	-0.2150	-0.2186	-0.2174	-0.2272	-0.2283	-0.2258	-0.2157	-0.2184	-0.2297	-0.2305	-0.1160	-0.1480	-0.1810	-0.2150	-0.2186	-0.2174
20.0	-0.0680	-0.0930	-0.1240	-0.1540	-0.2203	-0.2311	-0.2272	-0.2205	-0.2205	-0.2165	-0.2182	-0.2138	-0.2589	-0.0680	-0.0930	-0.1240	-0.1540	-0.2203	-0.2311
25.0	-0.0750	-0.1090	-0.1320	-0.1330	-0.1882	-0.2123	-0.2264	-0.2304	-0.2337	-0.2325	-0.2322	-0.2269	-0.2243	-0.0750	-0.1090	-0.1320	-0.1330	-0.1882	-0.2123
30.0	-0.0970	-0.1860	-0.1860	-0.1980	-0.1989	-0.1828	-0.1798	-0.1762	-0.1751	-0.1740	-0.1732	-0.1782	-0.1855	-0.0970	-0.1860	-0.1860	-0.1980	-0.1989	-0.1828
35.0	-0.1040	-0.1600	-0.1850	-0.2080	-0.1936	-0.1746	-0.1503	-0.1433	-0.1416	-0.1401	-0.1440	-0.1502	-0.1555	-0.1040	-0.1600	-0.1850	-0.2080	-0.1936	-0.1746
40.0	-0.0250	-0.0840	-0.1120	-0.1300	-0.1248	-0.1157	-0.1182	-0.1245	-0.1400	-0.1320	-0.1411	-0.1463	-0.1532	-0.0250	-0.0840	-0.1120	-0.1300	-0.1248	-0.1157
45.0	-0.0570	-0.0680	-0.0880	-0.1260	-0.1157	-0.1018	-0.1055	-0.1203	-0.1230	-0.1113	-0.1232	-0.1304	-0.1350	-0.0570	-0.0680	-0.0880	-0.1260	-0.1157	-0.1018
50.0	-0.1080	-0.0930	-0.0930	-0.0870	-0.0745	-0.0894	-0.1198	-0.1388	-0.1366	-0.1234	-0.1254	-0.1416	-0.1463	-0.1080	-0.0930	-0.0930	-0.0870	-0.0745	-0.0894
55.0	-0.1250	-0.1150	-0.2070	-0.1030	-0.0588	-0.0831	-0.1095	-0.0791	-0.1189	-0.0929	-0.1186	-0.1533	-0.1523	-0.1250	-0.1150	-0.2070	-0.1030	-0.0588	-0.0831
60.0	-0.1430	-0.0820	-0.0850	-0.0910	-0.1251	-0.1492	-0.1507	-0.1570	-0.1589	-0.1584	-0.1689	-0.1773	-0.1947	-0.1430	-0.0820	-0.0850	-0.0910	-0.1251	-0.1492
70.0	-0.4220	-0.4380	-0.4250	-0.4330	-0.3390	-0.3231	-0.2373	-0.2547	-0.2277	-0.2303	-0.3505	-0.1931	-0.1880	-0.4220	-0.4380	-0.4250	-0.4330	-0.3390	-0.3231
80.0	-0.4500	-0.5000	-0.5240	-0.5140	-0.4633	-0.4648	-0.4746	-0.4862	-0.4621	-0.4716	-0.4474	-0.3916	-0.4082	-0.4500	-0.5000	-0.5240	-0.5140	-0.4633	-0.4648
90.0	-0.5600	-0.5920	-0.5130	-0.5930	-0.5674	-0.6030	-0.5774	-0.6021	-0.5938	-0.5886	-0.5839	-0.5673	-0.5700	-0.5600	-0.5920	-0.5130	-0.5930	-0.5674	-0.6030

$C_{m,\delta h=25^{\circ}}(\alpha,\beta)$ [2]

	-30.0	**-25.0**	**-20.0**	**-15.0**	**-10.0**	**-8.0**	**-6.0**	**-4.0**	**-2.0**	**0.0**	**2.0**	**4.0**	**6.0**	**8.0**	**10.0**	**15.0**	**20.0**	**25.0**	**30.0**
-20.0	0.0922	0.0559	0.0525	-0.0338	-0.0518	-0.0605	-0.0574	-0.0554	-0.0550	-0.0503	-0.0521	-0.0483	-0.0459	0.0922	0.0559	0.0525	-0.0338	-0.0518	-0.0605
-15.0	0.0372	0.0062	-0.0067	-0.0217	-0.0702	-0.0860	-0.1001	-0.1000	-0.1002	-0.1012	-0.0974	-0.0939	-0.0839	0.0372	0.0062	-0.0067	-0.0217	-0.0702	-0.0860
-10.0	0.0251	0.0006	0.0014	-0.0229	-0.0536	-0.0634	-0.0654	-0.0656	-0.0652	-0.0647	-0.0653	-0.0659	-0.0654	0.0251	0.0006	0.0014	-0.0229	-0.0536	-0.0634
-5.0	-0.0006	-0.0193	-0.0234	-0.0321	-0.0386	-0.0389	-0.0385	-0.0386	-0.0388	-0.0387	-0.0389	-0.0387	-0.0388	-0.0006	-0.0193	-0.0234	-0.0321	-0.0386	-0.0389
0.0	-0.0273	-0.0246	-0.0230	-0.0231	-0.0259	-0.0255	-0.0286	-0.0271	-0.0271	-0.0267	-0.0266	-0.0272	-0.0280	-0.0273	-0.0246	-0.0230	-0.0231	-0.0259	-0.0255
5.0	-0.0319	-0.0272	-0.0204	-0.0170	-0.0152	-0.0148	-0.0145	-0.0138	-0.0127	-0.0128	-0.0133	-0.0141	-0.0149	-0.0319	-0.0272	-0.0204	-0.0170	-0.0152	-0.0148
10.0	-0.0446	-0.0368	-0.0266	-0.0166	-0.0127	-0.0113	-0.0092	-0.0057	-0.0033	-0.0016	-0.0017	-0.0025	-0.0038	-0.0446	-0.0368	-0.0266	-0.0166	-0.0127	-0.0113
15.0	-0.0682	-0.0587	-0.0425	-0.0197	0.0000	0.0026	0.0078	0.0158	0.0243	0.0323	0.0328	0.0290	0.0189	-0.0682	-0.0587	-0.0425	-0.0197	0.0000	0.0026
20.0	-0.0947	-0.0851	-0.0642	-0.0536	-0.0308	-0.0293	-0.0275	-0.0234	-0.0188	-0.0161	-0.0141	-0.0136	-0.0154	-0.0947	-0.0851	-0.0642	-0.0536	-0.0308	-0.0293
25.0	-0.1090	-0.1235	-0.0938	-0.0777	-0.0674	-0.0648	-0.1607	-0.0558	-0.0526	-0.0455	-0.0471	-0.0479	-0.0530	-0.1090	-0.1235	-0.0938	-0.0777	-0.0674	-0.0648
30.0	-0.0135	-0.0857	-0.0907	-0.1013	-0.0875	-0.0983	-0.0951	-0.0913	-0.0902	-0.0871	-0.0865	-0.0896	-0.0962	-0.0135	-0.0857	-0.0907	-0.1013	-0.0875	-0.0983
35.0	0.0202	-0.0510	-0.0891	-0.1086	-0.1018	-0.1014	-0.1105	-0.1117	-0.1127	-0.1151	-0.1167	-0.1230	-0.1301	0.0202	-0.0510	-0.0891	-0.1086	-0.1018	-0.1014
40.0	-0.0116	-0.0639	-0.0971	-0.1156	-0.1170	-0.1142	-0.1182	-0.1160	-0.1178	-0.1206	-0.1280	-0.1347	-0.1436	-0.0116	-0.0639	-0.0971	-0.1156	-0.1170	-0.1142
45.0	-0.0023	-0.0164	-0.0417	-0.0987	-0.0985	-0.0975	-0.1278	-0.1042	-0.1156	-0.0979	-0.1122	-0.1225	-0.1444	-0.0023	-0.0164	-0.0417	-0.0987	-0.0985	-0.0975

$C_{m,left}(\alpha,\beta)$ *[2]*

α	ΔCm,sb(α)
0.0	0.0

$\Delta C_{m,sb}(\alpha)$ [10]

α	ΔCm(α)
-20.0	0.019
-15.0	0.019
-10.0	0.019
-5.0	0.019
0.0	0.019
5.0	0.019
10.0	0.020
15.0	0.040
20.0	0.040
25.0	0.050
30.0	0.060
35.0	0.060
40.0	0.060
45.0	0.060
50.0	0.060
55.0	0.060
60.0	0.060
70.0	0.060
80.0	0.060
90.0	0.060

$\Delta C_m(\alpha)$ [2]

δh	ηδh(δh)
-25.0	1.00
-10.0	1.00
0.0	1.00
10.0	1.00
25.0	0.95

$\eta_{\delta h}(\alpha)$ [2]

α	$C_{mq}(\alpha)$
-20.0	-6.840
-15.0	-6.840
-10.0	-6.840
-5.0	-3.420
0.0	-5.480
5.0	-5.450
10.0	-6.020
15.0	-6.700
20.0	-5.690
25.0	-6.000
30.0	-6.200
35.0	-6.400
40.0	-6.600
45.0	-6.000
50.0	-5.500
55.0	-5.000
60.0	-4.500
70.0	-3.500
80.0	-5.600
90.0	-4.040

$C_{mq}(\alpha)$ [2]

α	$\Delta C_{mq,lef}(\alpha)$
-20.0	-0.367
-15.0	-0.367
-10.0	-0.367
-5.0	2.880
0.0	0.250
5.0	0.270
10.0	-0.210
15.0	0.360
20.0	-1.260
25.0	-2.510
30.0	-1.660
35.0	-1.720
40.0	-1.200
45.0	-0.600

$\Delta C_{mq,lef}(\alpha)$ [2]

	-30.0	**-25.0**	**-20.0**	**-15.0**	**-10.0**	**-8.0**	**-6.0**	**-4.0**	**-2.0**	**0.0**	**2.0**	**4.0**	**6.0**	**8.0**	**10.0**	**15.0**	**20.0**	**25.0**	**30.0**
-20.0	-0.0633	-0.0667	-0.0565	-0.0418	-0.0175	-0.0093	-0.0006	0.0047	0.0034	0.0000	-0.0048	-0.0106	-0.0074	-0.0633	-0.0667	-0.0565	-0.0418	-0.0175	-0.0093
-15.0	-0.0621	-0.0579	-0.0454	-0.0285	-0.0181	-0.0133	-0.0067	-0.0010	0.0010	0.0000	0.0004	0.0028	0.0071	-0.0621	-0.0579	-0.0454	-0.0285	-0.0181	-0.0133
-10.0	-0.0678	-0.0588	-0.0493	-0.0393	-0.0242	-0.0167	-0.0098	-0.0022	0.0022	0.0000	0.0047	0.0096	0.0163	-0.0678	-0.0588	-0.0493	-0.0393	-0.0242	-0.0167
-5.0	-0.0850	-0.0761	-0.0639	-0.0478	-0.0354	-0.0263	-0.0184	-0.0114	-0.0055	0.0000	0.0054	0.0112	0.0189	-0.0850	-0.0761	-0.0639	-0.0478	-0.0354	-0.0263
0.0	-0.0995	-0.0869	-0.0795	-0.0528	-0.0375	-0.0280	-0.0193	-0.0118	-0.0053	0.0000	0.0055	0.0122	0.0208	-0.0995	-0.0869	-0.0795	-0.0528	-0.0375	-0.0280
5.0	-0.1044	-0.0824	-0.0691	-0.0521	-0.0352	-0.0280	-0.0193	-0.0121	-0.0050	0.0000	0.0056	0.0132	0.0210	-0.1044	-0.0824	-0.0691	-0.0521	-0.0352	-0.0280
10.0	-0.0981	-0.0759	-0.0631	-0.0478	-0.0358	-0.0283	-0.0201	-0.0125	-0.0054	0.0000	0.0054	0.0131	0.0225	-0.0981	-0.0759	-0.0631	-0.0478	-0.0358	-0.0283
15.0	-0.0976	-0.0618	-0.0475	-0.0447	-0.0339	-0.0267	-0.0180	-0.0114	-0.0045	0.0000	0.0055	0.0129	0.0223	-0.0976	-0.0618	-0.0475	-0.0447	-0.0339	-0.0267
20.0	-0.0677	-0.0506	-0.0290	-0.0276	-0.0259	-0.0216	-0.0151	-0.0088	-0.0040	0.0000	-0.0022	0.0021	0.0099	-0.0677	-0.0506	-0.0290	-0.0276	-0.0259	-0.0216
25.0	-0.0488	-0.0351	-0.0163	-0.0128	-0.0155	-0.0115	-0.0072	-0.0037	-0.0016	0.0000	0.0013	0.0047	0.0085	-0.0488	-0.0351	-0.0163	-0.0128	-0.0155	-0.0115
30.0	-0.0102	0.0155	0.0287	0.0256	0.0294	0.0067	0.0040	0.0046	0.0038	0.0000	-0.0042	-0.0050	-0.0069	-0.0102	0.0155	0.0287	0.0256	0.0294	0.0067
35.0	-0.0028	0.0314	0.0572	0.0712	0.0545	0.0537	0.0413	0.0254	0.0145	0.0000	-0.0104	-0.0162	-0.0223	-0.0028	0.0314	0.0572	0.0712	0.0545	0.0537
40.0	-0.0037	0.0167	0.0770	0.0803	0.0573	0.0433	0.0292	0.0184	0.0068	0.0000	-0.0048	-0.0115	-0.0233	-0.0037	0.0167	0.0770	0.0803	0.0573	0.0433
45.0	-0.0120	0.0027	0.0397	0.0577	0.0399	0.0304	0.0200	0.0147	0.0062	0.0000	-0.0145	-0.0356	-0.0442	-0.0120	0.0027	0.0397	0.0577	0.0399	0.0304
50.0	-0.0373	-0.0274	-0.0096	0.0216	0.0319	0.0296	0.0298	0.0157	0.0104	0.0000	-0.0082	-0.0255	-0.0441	-0.0373	-0.0274	-0.0096	0.0216	0.0319	0.0296
55.0	-0.0449	-0.0324	0.0102	-0.0077	-0.0161	-0.0090	-0.0057	-0.0065	0.0040	0.0000	-0.0019	-0.0152	-0.0275	-0.0449	-0.0324	0.0102	-0.0077	-0.0161	-0.0090
60.0	-0.0055	0.0068	0.0374	0.0119	0.0234	0.0127	-0.0016	-0.0120	-0.0029	0.0000	0.0052	0.0057	-0.0101	-0.0055	0.0068	0.0374	0.0119	0.0234	0.0127
70.0	0.0232	0.0280	0.0203	0.0127	0.0007	-0.0031	-0.0070	-0.0137	-0.0168	0.0000	0.0028	0.0133	0.0138	0.0232	0.0280	0.0203	0.0127	0.0007	-0.0031
80.0	0.0236	0.0237	0.0161	0.0116	0.0099	0.0110	0.0108	0.0087	0.0059	0.0000	-0.0013	0.0035	-0.0054	0.0236	0.0237	0.0161	0.0116	0.0099	0.0110
90.0	0.0319	0.0199	0.0108	0.0018	0.0079	0.0062	0.0039	0.0029	0.0018	0.0000	-0.0064	-0.0051	-0.0098	0.0319	0.0199	0.0108	0.0018	0.0079	0.0062

$C_{n,\delta h=-25^{\circ}}(\alpha,\beta)$ *[2]*

	-30.0	**-25.0**	**-20.0**	**-15.0**	**-10.0**	**-8.0**	**-6.0**	**-4.0**	**-2.0**	**0.0**	**2.0**	**4.0**	**6.0**	**8.0**	**10.0**	**15.0**	**20.0**	**25.0**	**30.0**
-20.0	-0.0551	-0.0588	-0.0496	-0.0406	-0.0219	-0.0145	-0.0075	-0.0012	0.0002	0.0000	-0.0009	0.0012	0.0059	-0.0551	-0.0588	-0.0496	-0.0406	-0.0219	-0.0145
-15.0	-0.0561	-0.0527	-0.0456	-0.0333	-0.0248	-0.0179	-0.0127	-0.0057	-0.0018	0.0000	0.0025	0.0058	0.0111	-0.0561	-0.0527	-0.0456	-0.0333	-0.0248	-0.0179
-10.0	-0.0666	-0.0637	-0.0545	-0.0468	-0.0297	-0.0233	-0.0145	-0.0079	-0.0031	0.0000	0.0028	0.0075	0.0150	-0.0666	-0.0637	-0.0545	-0.0468	-0.0297	-0.0233
-5.0	-0.0902	-0.0812	-0.0664	-0.0523	-0.0366	-0.0277	-0.0194	-0.0117	-0.0055	0.0000	0.0063	0.0127	0.0214	-0.0902	-0.0812	-0.0664	-0.0523	-0.0366	-0.0277
0.0	-0.1058	-0.0916	-0.0749	-0.0578	-0.0413	-0.0317	-0.0226	-0.0138	-0.0066	0.0000	0.0061	0.0135	0.0225	-0.1058	-0.0916	-0.0749	-0.0578	-0.0413	-0.0317
5.0	-0.1074	-0.0916	-0.0754	-0.0587	-0.0415	-0.0329	-0.0227	-0.0145	-0.0064	0.0000	0.0061	0.0148	0.0231	-0.1074	-0.0916	-0.0754	-0.0587	-0.0415	-0.0329
10.0	-0.0981	-0.0798	-0.0718	-0.0568	-0.0416	-0.0326	-0.0232	-0.0146	-0.0062	0.0000	0.0063	0.0147	0.0240	-0.0981	-0.0798	-0.0718	-0.0568	-0.0416	-0.0326
15.0	-0.0812	-0.0592	-0.0537	-0.0513	-0.0375	-0.0301	-0.0212	-0.0121	-0.0052	0.0000	0.0063	0.0141	0.0243	-0.0812	-0.0592	-0.0537	-0.0513	-0.0375	-0.0301
20.0	-0.0684	-0.0491	-0.0290	-0.0321	-0.0308	-0.0262	-0.0179	-0.0102	-0.0042	0.0000	0.0018	0.0068	0.0152	-0.0684	-0.0491	-0.0290	-0.0321	-0.0308	-0.0262
25.0	-0.0528	-0.0411	-0.0223	-0.0229	-0.0240	-0.0188	-0.0129	-0.0072	-0.0029	0.0000	0.0033	0.0088	0.0147	-0.0528	-0.0411	-0.0223	-0.0229	-0.0240	-0.0188
30.0	-0.0300	0.0002	0.0115	0.0164	0.0091	-0.0037	-0.0024	0.0009	0.0025	0.0000	-0.0029	-0.0023	-0.0013	-0.0300	0.0002	0.0115	0.0164	0.0091	-0.0037
35.0	-0.0098	0.0168	0.0392	0.0514	0.0396	0.0340	0.0163	0.0103	0.0069	0.0000	-0.0097	-0.0147	-0.0157	-0.0098	0.0168	0.0392	0.0514	0.0396	0.0340
40.0	-0.0025	0.0054	0.0683	0.0744	0.0506	0.0351	0.0207	0.0131	0.0052	0.0000	-0.0071	-0.0136	-0.0216	-0.0025	0.0054	0.0683	0.0744	0.0506	0.0351
45.0	-0.0111	0.0010	0.0294	0.0612	0.0451	0.0369	0.0293	0.0201	0.0116	0.0000	-0.0237	-0.0375	-0.0460	-0.0111	0.0010	0.0294	0.0612	0.0451	0.0369
50.0	-0.0256	-0.0136	0.0058	0.0287	0.0254	0.0231	0.0233	0.0105	0.0078	0.0000	-0.0063	-0.0217	-0.0355	-0.0256	-0.0136	0.0058	0.0287	0.0254	0.0231
55.0	-0.0302	-0.0228	0.0130	0.0140	0.0040	0.0027	-0.0023	-0.0070	0.0043	0.0000	0.0028	-0.0058	-0.0172	-0.0302	-0.0228	0.0130	0.0140	0.0040	0.0027
60.0	-0.0188	-0.0075	0.0211	0.0080	-0.0061	-0.0100	-0.0174	-0.0219	-0.0079	0.0000	0.0075	0.0103	0.0043	-0.0188	-0.0075	0.0211	0.0080	-0.0061	-0.0100
70.0	0.0296	0.0316	0.0210	0.0092	0.0003	-0.0062	-0.0128	-0.0193	-0.0187	0.0000	0.0039	0.0151	0.0163	0.0296	0.0316	0.0210	0.0092	0.0003	-0.0062
80.0	0.0264	0.0351	0.0254	0.0180	0.0133	0.0126	0.0107	0.0079	0.0055	0.0000	-0.0001	0.0060	-0.0033	0.0264	0.0351	0.0254	0.0180	0.0133	0.0126
90.0	0.0274	0.0128	0.0118	0.0059	0.0051	0.0044	0.0031	0.0027	0.0017	0.0000	-0.0018	-0.0023	-0.0031	0.0274	0.0128	0.0118	0.0059	0.0051	0.0044

$C_{n,\delta h=0^{\circ}}(\alpha,\beta)$ *[2]*

	-30.0	-25.0	-20.0	-15.0	-10.0	-8.0	-6.0	-4.0	-2.0	0.0	2.0	4.0	6.0	8.0	10.0	15.0	20.0	25.0	30.0
-20.0	-0.0488	-0.0515	-0.0442	-0.0428	-0.0215	-0.0136	-0.0046	-0.0018	0.0001	0.0000	-0.0005	-0.0003	0.0048	-0.0488	-0.0515	-0.0442	-0.0428	-0.0215	-0.0136
-15.0	-0.0499	-0.0463	-0.0402	-0.0324	-0.0201	-0.0154	-0.0095	-0.0029	-0.0013	0.0000	0.0005	0.0031	0.0093	-0.0499	-0.0463	-0.0402	-0.0324	-0.0201	-0.0154
-10.0	-0.0574	-0.0534	-0.0477	-0.0424	-0.0277	-0.0208	-0.0134	-0.0073	-0.0025	0.0000	0.0018	0.0075	0.0140	-0.0574	-0.0534	-0.0477	-0.0424	-0.0277	-0.0208
-5.0	-0.0758	-0.0714	-0.0617	-0.0507	-0.0368	-0.0290	-0.0208	-0.0128	-0.0061	0.0000	0.0064	0.0139	0.0222	-0.0758	-0.0714	-0.0617	-0.0507	-0.0368	-0.0290
0.0	-0.0919	-0.0818	-0.0694	-0.0560	-0.0402	-0.0311	-0.0223	-0.0141	-0.0065	0.0000	0.0069	0.0147	0.0230	-0.0919	-0.0818	-0.0694	-0.0560	-0.0402	-0.0311
5.0	-0.0860	-0.0749	-0.0659	-0.0531	-0.0406	-0.0322	-0.0223	-0.0127	-0.0047	0.0000	0.0042	0.0124	0.0221	-0.0860	-0.0749	-0.0659	-0.0531	-0.0406	-0.0322
10.0	-0.0821	-0.0723	-0.0653	-0.0534	-0.0403	-0.0328	-0.0233	-0.0135	-0.0061	0.0000	0.0049	0.0126	0.0218	-0.0821	-0.0723	-0.0653	-0.0534	-0.0403	-0.0328
15.0	-0.0671	-0.0516	-0.0486	-0.0496	-0.0357	-0.0289	-0.0195	-0.0107	-0.0048	0.0000	0.0038	0.0108	0.0208	-0.0671	-0.0516	-0.0486	-0.0496	-0.0357	-0.0289
20.0	-0.0398	-0.0355	-0.0237	-0.0284	-0.0311	-0.0270	-0.0183	-0.0091	-0.0035	0.0000	0.0028	0.0052	0.0178	-0.0398	-0.0355	-0.0237	-0.0284	-0.0311	-0.0270
25.0	-0.0273	-0.0210	-0.0132	-0.0148	-0.0219	-0.0196	-0.0159	-0.0089	-0.0033	0.0000	0.0043	0.0103	0.0179	-0.0273	-0.0210	-0.0132	-0.0148	-0.0219	-0.0196
30.0	-0.0116	0.0142	0.0273	0.0242	0.0111	-0.0066	-0.0063	-0.0020	0.0009	0.0000	-0.0010	-0.0006	0.0018	-0.0116	0.0142	0.0273	0.0242	0.0111	-0.0066
35.0	0.0018	0.0282	0.0499	0.0550	0.0430	0.0382	0.0193	0.0099	0.0069	0.0000	-0.0086	-0.0126	-0.0154	0.0018	0.0282	0.0499	0.0550	0.0430	0.0382
40.0	0.0003	-0.0193	0.0698	0.0788	0.0534	0.0372	0.0252	0.0169	0.0073	0.0000	-0.0084	-0.0147	-0.0248	0.0003	-0.0193	0.0698	0.0788	0.0534	0.0372
45.0	-0.0149	-0.0007	0.0226	0.0569	0.0455	0.0363	0.0288	0.0188	0.0089	0.0000	-0.0252	-0.0403	-0.0511	-0.0149	-0.0007	0.0226	0.0569	0.0455	0.0363
50.0	-0.0219	-0.0174	-0.0077	0.0171	0.0310	0.0307	0.0328	0.0189	0.0120	0.0000	-0.0058	-0.0251	-0.0408	-0.0219	-0.0174	-0.0077	0.0171	0.0310	0.0307
55.0	-0.0518	-0.0435	-0.0053	-0.0307	-0.0231	-0.0108	-0.0022	-0.0016	0.0065	0.0000	-0.0026	-0.0085	-0.0223	-0.0518	-0.0435	-0.0053	-0.0307	-0.0231	-0.0108
60.0	-0.0270	-0.0207	0.0042	-0.0137	-0.0137	-0.0138	-0.0173	-0.0203	-0.0071	0.0000	0.0093	0.0138	0.0067	-0.0270	-0.0207	0.0042	-0.0137	-0.0137	-0.0138
70.0	0.0158	0.0270	0.0252	0.0117	-0.0010	-0.0039	-0.0068	-0.0132	-0.0159	0.0000	-0.0039	0.0110	0.0088	0.0158	0.0270	0.0252	0.0117	-0.0010	-0.0039
80.0	0.0106	0.0182	0.0182	0.0117	0.0081	0.0096	0.0099	0.0081	0.0056	0.0000	-0.0010	0.0042	-0.0043	0.0106	0.0182	0.0182	0.0117	0.0081	0.0096
90.0	0.0118	0.0101	0.0117	0.0036	0.0060	0.0053	0.0041	0.0035	0.0021	0.0000	-0.0002	0.0008	0.0008	0.0118	0.0101	0.0117	0.0036	0.0060	0.0053

$C_{n,\delta h=25^\circ}(\alpha,\beta)$ *[2]*

	-30.0	**-25.0**	**-20.0**	**-15.0**	**-10.0**	**-8.0**	**-6.0**	**-4.0**	**-2.0**	**0.0**	**2.0**	**4.0**	**6.0**	**8.0**	**10.0**	**15.0**	**20.0**	**25.0**	**30.0**
-20.0	-0.0541	-0.0563	-0.0461	-0.0495	-0.0296	-0.0208	-0.0173	-0.0100	-0.0043	0.0000	0.0037	0.0076	0.0121	-0.0541	-0.0563	-0.0461	-0.0495	-0.0296	-0.0208
-15.0	-0.0678	-0.0728	-0.0658	-0.0539	-0.0358	-0.0282	-0.0204	-0.0126	-0.0058	0.0000	0.0057	0.0125	0.0206	-0.0678	-0.0728	-0.0658	-0.0539	-0.0358	-0.0282
-10.0	-0.0780	-0.0773	-0.0629	-0.0555	-0.0370	-0.0289	-0.0218	-0.0142	-0.0068	0.0000	0.0069	0.0141	0.0224	-0.0780	-0.0773	-0.0629	-0.0555	-0.0370	-0.0289
-5.0	-0.0881	-0.0851	-0.0753	-0.0556	-0.0402	-0.0308	-0.0254	-0.0141	-0.0067	0.0000	0.0067	0.0144	0.0234	-0.0881	-0.0851	-0.0753	-0.0556	-0.0402	-0.0308
0.0	-0.1060	-0.0929	-0.0754	-0.0593	-0.0420	-0.0319	-0.0222	-0.0135	-0.0062	0.0000	0.0066	0.0143	0.0234	-0.1060	-0.0929	-0.0754	-0.0593	-0.0420	-0.0319
5.0	-0.1051	-0.0877	-0.0728	-0.0573	-0.0410	-0.0324	-0.0225	-0.0140	-0.0061	0.0000	0.0062	0.0149	0.0229	-0.1051	-0.0877	-0.0728	-0.0573	-0.0410	-0.0324
10.0	-0.0926	-0.0797	-0.0731	-0.0580	-0.0424	-0.0327	-0.0235	-0.0154	-0.0064	0.0000	0.0064	0.0150	0.0243	-0.0926	-0.0797	-0.0731	-0.0580	-0.0424	-0.0327
15.0	-0.0632	-0.0670	-0.0653	-0.0549	-0.0414	-0.0316	-0.0223	-0.0135	-0.0059	0.0000	0.0055	0.0143	0.0232	-0.0632	-0.0670	-0.0653	-0.0549	-0.0414	-0.0316
20.0	-0.0359	-0.0191	-0.0173	-0.0230	-0.0216	-0.0174	-0.0076	-0.0058	-0.0015	0.0000	0.0030	0.0087	0.0159	-0.0359	-0.0191	-0.0173	-0.0230	-0.0216	-0.0174
25.0	-0.0342	-0.0208	-0.0017	0.0063	-0.0059	-0.0094	-0.0061	-0.0029	-0.0012	0.0000	0.0008	0.0038	0.0069	-0.0342	-0.0208	-0.0017	0.0063	-0.0059	-0.0094
30.0	-0.0265	-0.0047	0.0128	0.0249	0.0198	0.0114	0.0055	0.0057	0.0030	0.0000	-0.0032	-0.0077	-0.0117	-0.0265	-0.0047	0.0128	0.0249	0.0198	0.0114
35.0	0.0138	0.0391	0.0533	0.0553	0.0434	0.0397	0.0263	0.0206	0.0119	0.0000	-0.0090	-0.0134	-0.0190	0.0138	0.0391	0.0533	0.0553	0.0434	0.0397
40.0	0.0302	0.0357	0.0675	0.0645	0.0445	0.0330	0.0214	0.0156	0.0065	0.0000	-0.0060	-0.0136	-0.0155	0.0302	0.0357	0.0675	0.0645	0.0445	0.0330
45.0	0.0003	-0.0038	0.0214	0.0400	0.0326	0.0261	0.0199	0.0130	0.0047	0.0000	-0.0170	-0.0369	-0.0464	0.0003	-0.0038	0.0214	0.0400	0.0326	0.0261

$C_{n,lef}(\alpha,\beta)$ *[2]*

	-30.0	**-25.0**	**-20.0**	**-15.0**	**-10.0**	**-8.0**	**-6.0**	**-4.0**	**-2.0**	**0.0**	**2.0**	**4.0**	**6.0**	**8.0**	**10.0**	**15.0**	**20.0**	**25.0**	**30.0**
-20.0	-0.0639	-0.0628	-0.0616	-0.0550	-0.0359	-0.0267	-0.0188	-0.0119	-0.0093	-0.0089	-0.0081	-0.0071	-0.0043	-0.0639	-0.0628	-0.0616	-0.0550	-0.0359	-0.0267
-15.0	-0.0619	-0.0554	-0.0490	-0.0384	-0.0336	-0.0279	-0.0232	-0.0174	-0.0137	-0.0098	-0.0066	-0.0042	0.0002	-0.0619	-0.0554	-0.0490	-0.0384	-0.0336	-0.0279
-10.0	-0.0679	-0.0599	-0.0544	-0.0465	-0.0396	-0.0322	-0.0254	-0.0193	-0.0139	-0.0091	-0.0055	-0.0007	0.0047	-0.0679	-0.0599	-0.0544	-0.0465	-0.0396	-0.0322
-5.0	-0.1080	-0.0994	-0.0838	-0.0677	-0.0460	-0.0398	-0.0321	-0.0248	-0.0176	-0.0111	-0.0054	0.0008	0.0074	-0.1080	-0.0994	-0.0838	-0.0677	-0.0460	-0.0398
0.0	-0.1234	-0.1094	-0.0915	-0.0721	-0.0498	-0.0448	-0.0377	-0.0277	-0.0193	-0.0120	-0.0056	0.0015	0.0092	-0.1234	-0.1094	-0.0915	-0.0721	-0.0498	-0.0448
5.0	-0.1245	-0.1100	-0.0939	-0.0730	-0.0496	-0.0440	-0.0360	-0.0265	-0.0176	-0.0105	-0.0037	0.0024	0.0109	-0.1245	-0.1100	-0.0939	-0.0730	-0.0496	-0.0440
10.0	-0.1118	-0.1020	-0.0894	-0.0690	-0.0486	-0.0440	-0.0349	-0.0267	-0.0171	-0.0090	-0.0020	0.0047	0.0132	-0.1118	-0.1020	-0.0894	-0.0690	-0.0486	-0.0440
15.0	-0.0967	-0.0807	-0.0737	-0.0628	-0.0472	-0.0416	-0.0379	-0.0234	-0.0136	-0.0066	-0.0003	0.0069	0.0158	-0.0967	-0.0807	-0.0737	-0.0628	-0.0472	-0.0416
20.0	-0.0670	-0.0561	-0.0505	-0.0472	-0.0358	-0.0269	-0.0198	-0.0111	-0.0029	0.0001	0.0015	0.0052	0.0121	-0.0670	-0.0561	-0.0505	-0.0472	-0.0358	-0.0269
25.0	-0.0353	-0.0316	-0.0201	-0.0243	-0.0175	-0.0130	-0.0079	-0.0037	0.0012	0.0045	0.0072	0.0106	0.0159	-0.0353	-0.0316	-0.0201	-0.0243	-0.0175	-0.0130
30.0	-0.0187	0.0091	0.0230	0.0196	0.0132	0.0026	0.0021	0.0056	0.0082	0.0065	0.0039	0.0022	0.0030	-0.0187	0.0091	0.0230	0.0196	0.0132	0.0026
35.0	0.0070	0.0357	0.0548	0.0658	0.0468	0.0383	0.0219	0.0178	0.0138	0.0099	0.0011	-0.0052	-0.0082	0.0070	0.0357	0.0548	0.0658	0.0468	0.0383
40.0	0.0056	0.0322	0.0831	0.0881	0.0563	0.0395	0.0271	0.0187	0.0127	0.0044	-0.0009	-0.0060	-0.0131	0.0056	0.0322	0.0831	0.0881	0.0563	0.0395
45.0	0.0046	0.0141	0.0404	0.0642	0.0513	0.0416	0.0319	0.0252	0.0164	0.0097	-0.0062	-0.0283	-0.0386	0.0046	0.0141	0.0404	0.0642	0.0513	0.0416
50.0	-0.0109	-0.0043	0.0157	0.0385	0.0386	0.0357	0.0282	0.0229	0.0196	0.0130	0.0071	-0.0140	-0.0211	-0.0109	-0.0043	0.0157	0.0385	0.0386	0.0357
55.0	-0.0100	-0.0124	0.0256	0.0303	0.0237	0.0233	0.0166	0.0132	0.0193	0.0167	0.0175	0.0025	-0.0042	-0.0100	-0.0124	0.0256	0.0303	0.0237	0.0233
60.0	0.0047	-0.0008	0.0281	0.0257	0.0165	0.0169	0.0115	0.0092	0.0207	0.0182	0.0236	0.0195	0.0158	0.0047	-0.0008	0.0281	0.0257	0.0165	0.0169
70.0	0.0470	0.0426	0.0308	0.0301	0.0253	0.0186	0.0160	0.0206	0.0190	0.0154	0.0245	0.0216	0.0283	0.0470	0.0426	0.0308	0.0301	0.0253	0.0186
80.0	0.0410	0.0414	0.0368	0.0314	0.0251	0.0248	0.0233	0.0184	0.0156	0.0138	0.0154	0.0133	0.0101	0.0410	0.0414	0.0368	0.0314	0.0251	0.0248
90.0	0.0320	0.0287	0.0237	0.0165	0.0165	0.0153	0.0151	0.0155	0.0138	0.0125	0.0113	0.0110	0.0101	0.0320	0.0287	0.0237	0.0165	0.0165	0.0153

$C_{n,\delta a=20^{\circ}}(\alpha,\beta)$ *[2]*

	-30.0	-25.0	-20.0	-15.0	-10.0	-8.0	-6.0	-4.0	-2.0	0.0	2.0	4.0	6.0	8.0	10.0	15.0	20.0	25.0	30.0
-20.0	-0.0683	-0.0615	-0.0556	-0.0519	-0.0393	-0.0314	-0.0264	-0.0199	-0.0140	-0.0096	-0.0054	-0.0029	0.0019	-0.0683	-0.0615	-0.0556	-0.0519	-0.0393	-0.0314
-15.0	-0.0733	-0.0702	-0.0663	-0.0551	-0.0437	-0.0372	-0.0301	-0.0233	-0.0170	-0.0108	-0.0046	0.0017	0.0082	-0.0733	-0.0702	-0.0663	-0.0551	-0.0437	-0.0372
-10.0	-0.0775	-0.0683	-0.0610	-0.0527	-0.0434	-0.0385	-0.0301	-0.0240	-0.0175	-0.0108	-0.0040	0.0027	0.0089	-0.0775	-0.0683	-0.0610	-0.0527	-0.0434	-0.0385
-5.0	-0.1149	-0.1067	-0.0898	-0.0716	-0.0482	-0.0429	-0.0359	-0.0267	-0.0188	-0.0113	-0.0050	0.0024	0.0093	-0.1149	-0.1067	-0.0898	-0.0716	-0.0482	-0.0429
0.0	-0.1225	-0.1106	-0.0909	-0.0722	-0.0482	-0.0428	-0.0359	-0.0256	-0.0170	-0.0099	-0.0027	0.0042	0.0121	-0.1225	-0.1106	-0.0909	-0.0722	-0.0482	-0.0428
5.0	-0.1162	-0.1030	-0.0873	-0.0677	-0.0465	-0.0406	-0.0328	-0.0240	-0.0145	-0.0077	-0.0008	0.0055	0.0134	-0.1162	-0.1030	-0.0873	-0.0677	-0.0465	-0.0406
10.0	-0.1024	-0.0944	-0.0827	-0.0658	-0.0450	-0.0401	-0.0307	-0.0224	-0.0137	-0.0056	0.0015	0.0079	0.0164	-0.1024	-0.0944	-0.0827	-0.0658	-0.0450	-0.0401
15.0	-0.0799	-0.0816	-0.0789	-0.0608	-0.0433	-0.0378	-0.0286	-0.0201	-0.0104	-0.0037	0.0024	0.0080	0.0159	-0.0799	-0.0816	-0.0789	-0.0608	-0.0433	-0.0378
20.0	-0.0364	-0.0285	-0.0304	-0.0355	-0.0273	-0.0233	-0.0167	-0.0106	-0.0056	-0.0026	0.0004	0.0045	0.0095	-0.0364	-0.0285	-0.0304	-0.0355	-0.0273	-0.0233
25.0	-0.0370	-0.0163	-0.0025	0.0028	-0.0087	-0.0105	-0.0071	-0.0049	-0.0019	-0.0006	0.0004	0.0024	0.0041	-0.0370	-0.0163	-0.0025	0.0028	-0.0087	-0.0105
30.0	-0.0169	0.0037	0.0210	0.0303	0.0211	0.0133	0.0096	0.0100	0.0081	0.0043	-0.0005	-0.0044	-0.0078	-0.0169	0.0037	0.0210	0.0303	0.0211	0.0133
35.0	0.0213	0.0543	0.0602	0.0659	0.0515	0.0439	0.0311	0.0236	0.0178	0.0068	0.0002	-0.0047	-0.0096	0.0213	0.0543	0.0602	0.0659	0.0515	0.0439
40.0	0.0189	0.0463	0.0803	0.0786	0.0519	0.0392	0.0287	0.0209	0.0127	0.0062	-0.0017	-0.0079	-0.0105	0.0189	0.0463	0.0803	0.0786	0.0519	0.0392
45.0	0.0055	0.0045	0.0224	0.0432	0.0419	0.0355	0.0274	0.0202	0.0141	0.0069	-0.0105	-0.0321	-0.0375	0.0055	0.0045	0.0224	0.0432	0.0419	0.0355

$C_{n,\delta a=20°,lef}(\alpha,\beta)$ *[2]*

	-30.0	-25.0	-20.0	-15.0	-10.0	-8.0	-6.0	-4.0	-2.0	0.0	2.0	4.0	6.0	8.0	10.0	15.0	20.0	25.0	30.0
-20.0	-0.0787	-0.0815	-0.0741	-0.0656	-0.0620	-0.0627	-0.0616	-0.0551	-0.0520	-0.0481	-0.0494	-0.0486	-0.0465	-0.0787	-0.0815	-0.0741	-0.0656	-0.0620	-0.0627
-15.0	-0.0758	-0.0745	-0.0708	-0.0610	-0.0623	-0.0658	-0.0649	-0.0580	-0.0522	-0.0484	-0.0465	-0.0437	-0.0395	-0.0758	-0.0745	-0.0708	-0.0610	-0.0623	-0.0658
-10.0	-0.0850	-0.0833	-0.0828	-0.0749	-0.0670	-0.0685	-0.0657	-0.0590	-0.0520	-0.0476	-0.0447	-0.0407	-0.0338	-0.0850	-0.0833	-0.0828	-0.0749	-0.0670	-0.0685
-5.0	-0.1422	-0.1270	-0.1170	-0.0932	-0.0774	-0.0745	-0.0671	-0.0599	-0.0522	-0.0449	-0.0401	-0.0337	-0.0258	-0.1422	-0.1270	-0.1170	-0.0932	-0.0774	-0.0745
0.0	-0.1576	-0.1381	-0.1181	-0.0981	-0.0791	-0.0783	-0.0693	-0.0610	-0.0527	-0.0451	-0.0389	-0.0323	-0.0230	-0.1576	-0.1381	-0.1181	-0.0981	-0.0791	-0.0783
5.0	-0.1591	-0.1406	-0.1216	-0.1026	-0.0819	-0.0793	-0.0696	-0.0610	-0.0520	-0.0450	-0.0388	-0.0311	-0.0220	-0.1591	-0.1406	-0.1216	-0.1026	-0.0819	-0.0793
10.0	-0.1520	-0.1350	-0.1170	-0.0990	-0.0816	-0.0779	-0.0690	-0.0600	-0.0513	-0.0441	-0.0382	-0.0309	-0.0200	-0.1520	-0.1350	-0.1170	-0.0990	-0.0816	-0.0779
15.0	-0.1306	-0.1091	-0.1026	-0.0906	-0.0752	-0.0759	-0.0694	-0.0605	-0.0517	-0.0446	-0.0386	-0.0320	-0.0201	-0.1306	-0.1091	-0.1026	-0.0906	-0.0752	-0.0759
20.0	-0.1271	-0.1071	-0.0866	-0.0836	-0.0677	-0.0685	-0.0676	-0.0628	-0.0543	-0.0475	-0.0431	-0.0404	-0.0321	-0.1271	-0.1071	-0.0866	-0.0836	-0.0677	-0.0685
25.0	-0.1041	-0.0925	-0.0738	-0.0683	-0.0542	-0.0600	-0.0620	-0.0589	-0.0527	-0.0483	-0.0451	-0.0411	-0.0333	-0.1041	-0.0925	-0.0738	-0.0683	-0.0542	-0.0600
30.0	-0.0598	-0.0295	-0.0183	-0.0098	-0.0049	-0.0281	-0.0422	-0.0475	-0.0474	-0.0494	-0.0510	-0.0514	-0.0504	-0.0598	-0.0295	-0.0183	-0.0098	-0.0049	-0.0281
35.0	-0.0467	-0.0201	0.0061	0.0186	0.0159	0.0123	-0.0085	-0.0243	-0.0363	-0.0449	-0.0527	-0.0571	-0.0607	-0.0467	-0.0201	0.0061	0.0186	0.0159	0.0123
40.0	-0.0289	-0.0111	0.0386	0.0484	0.0321	0.0145	0.0013	-0.0103	-0.0243	-0.0328	-0.0405	-0.0449	-0.0496	-0.0289	-0.0111	0.0386	0.0484	0.0321	0.0145
45.0	-0.0243	-0.0129	0.0213	0.0447	0.0325	0.0248	0.0140	0.0047	-0.0053	-0.0162	-0.0410	-0.0545	-0.0617	-0.0243	-0.0129	0.0213	0.0447	0.0325	0.0248
50.0	-0.0395	-0.0247	-0.0063	0.0177	0.0196	0.0149	0.0082	0.0022	0.0003	-0.0081	-0.0166	-0.0300	-0.0438	-0.0395	-0.0247	-0.0063	0.0177	0.0196	0.0149
55.0	-0.0364	-0.0305	0.0088	0.0067	0.0006	-0.0018	-0.0075	-0.0075	0.0004	-0.0040	-0.0012	-0.0089	-0.0203	-0.0364	-0.0305	0.0088	0.0067	0.0006	-0.0018
60.0	-0.0162	-0.0127	0.0181	0.0026	-0.0084	-0.0121	-0.0195	-0.0193	-0.0082	-0.0012	0.0066	0.0096	0.0046	-0.0162	-0.0127	0.0181	0.0026	-0.0084	-0.0121
70.0	0.0267	0.0297	0.0177	0.0069	-0.0016	-0.0081	-0.0156	-0.0203	-0.0152	-0.0015	0.0015	0.0143	0.0157	0.0267	0.0297	0.0177	0.0069	-0.0016	-0.0081
80.0	0.0223	0.0261	0.0215	0.0167	0.0109	0.0084	0.0050	0.0016	-0.0002	-0.0061	-0.0055	-0.0089	-0.0096	0.0223	0.0261	0.0215	0.0167	0.0109	0.0084
90.0	0.0089	0.0077	0.0068	0.0014	-0.0036	-0.0044	-0.0057	-0.0010	-0.0009	-0.0024	-0.0042	-0.0047	-0.0054	0.0089	0.0077	0.0068	0.0014	-0.0036	-0.0044

$C_{n,\delta r=30^{\circ}}(\alpha,\beta)$ *[2]*

α	Cnr(α)
-20.0	-0.517
-15.0	-0.517
-10.0	-0.517
-5.0	-0.461
0.0	-0.414
5.0	-0.397
10.0	-0.373
15.0	-0.455
20.0	-0.550
25.0	-0.582
30.0	-0.595
35.0	-0.637
40.0	-1.020
45.0	-0.840
50.0	-0.541
55.0	-0.350
60.0	-0.350
70.0	-0.070
80.0	-0.150
90.0	-0.150

$C_{nr}(\alpha)$ [2]

α	ΔCnβ(α)
-20.0	0.0000
-15.0	0.0000
-10.0	0.0000
-5.0	0.0000
0.0	0.0000
5.0	0.0000
10.0	0.0000
15.0	0.0000
20.0	0.0000
25.0	-0.0008
30.0	0.0010
35.0	0.0000
40.0	0.0000
45.0	0.0000
50.0	0.0000
55.0	0.0000
60.0	0.0000
70.0	0.0000
80.0	0.0000
90.0	0.0000

$\Delta C_{n\beta}(\alpha)$ [2]

α	ΔCnr,lef(α)
-20.0	0.137
-15.0	0.137
-10.0	0.137
-5.0	0.098
0.0	0.037
5.0	0.016
10.0	0.007
15.0	0.014
20.0	-0.103
25.0	-0.098
30.0	-0.310
35.0	-0.437
40.0	0.167
45.0	0.084

$\Delta C_{nr,lef}(\alpha)$ [2]

α	Cnp(α)
-20.0	-0.0006
-15.0	-0.0006
-10.0	-0.0006
-5.0	0.0424
0.0	-0.0075
5.0	-0.0214
10.0	-0.0320
15.0	-0.0320
20.0	0.0500
25.0	0.1500
30.0	0.1300
35.0	0.1580
40.0	0.2400
45.0	0.1500
50.0	0.0000
55.0	-0.2000
60.0	-0.3000
70.0	0.1500
80.0	0.0000
90.0	0.0000

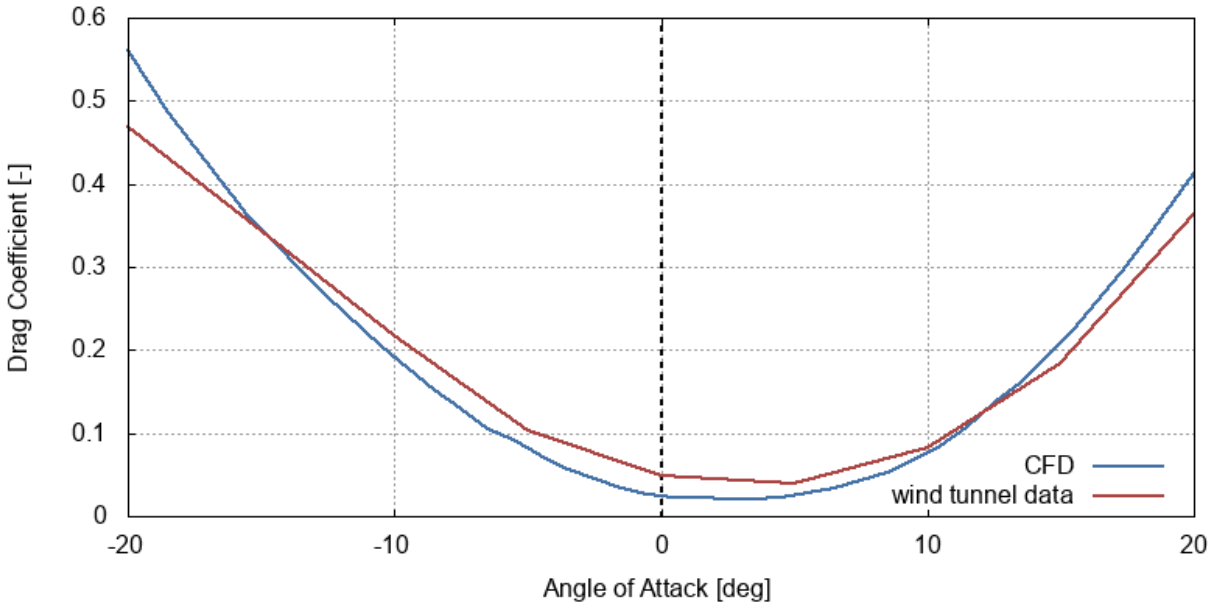
$C_{np}(\alpha)$ [2]

α	ΔCnp,lef(α)
-20.0	0.0615
-15.0	0.0615
-10.0	0.0615
-5.0	0.0091
0.0	0.0610
5.0	0.0129
10.0	0.0439
15.0	0.0512
20.0	-0.0294
25.0	0.0017
30.0	0.0584
35.0	0.2110
40.0	0.3920
45.0	0.1960

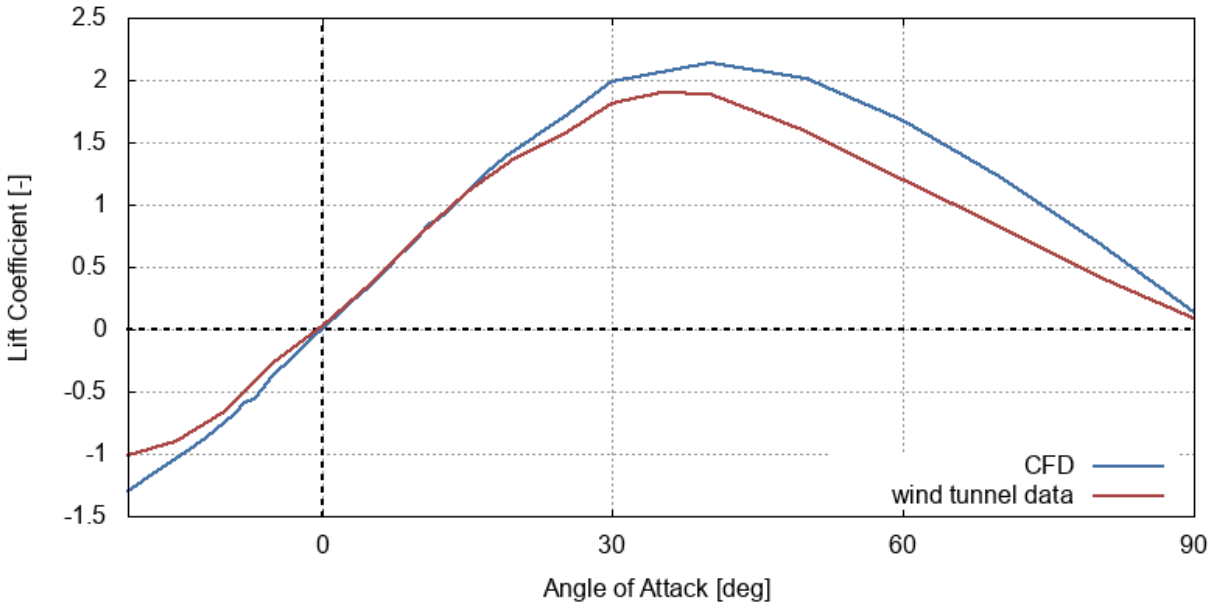
$\Delta C_{np,lef}(\alpha)$ [2]

OpenFOAM `simpleFoam` a steady-state solver for incompressible, turbulent flow was used to compute aircraft aerodynamic characteristics for various aircraft configurations.

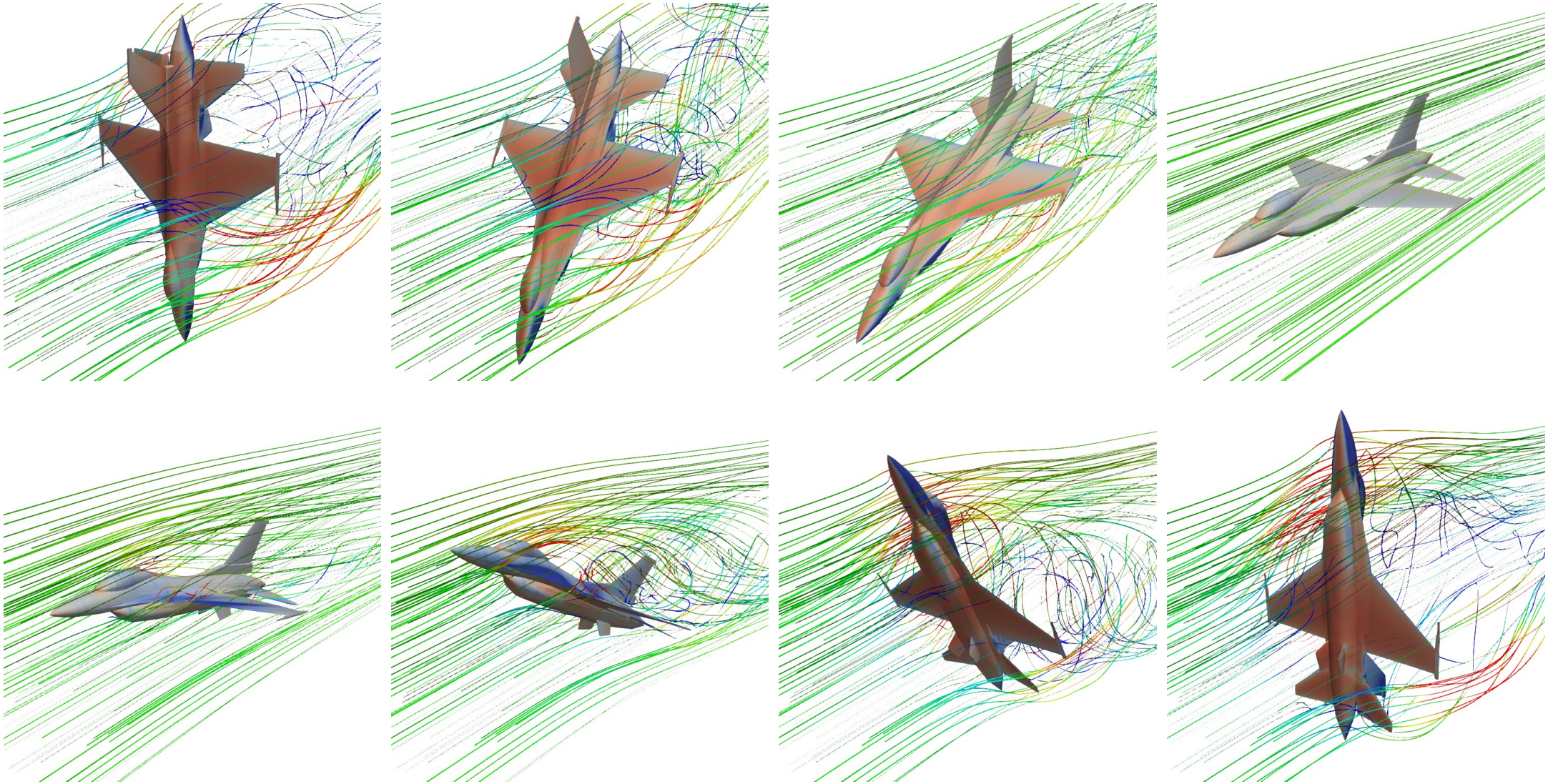
Computations results, compared to the data available in [2], are shown in the following figures.



Drag coefficient

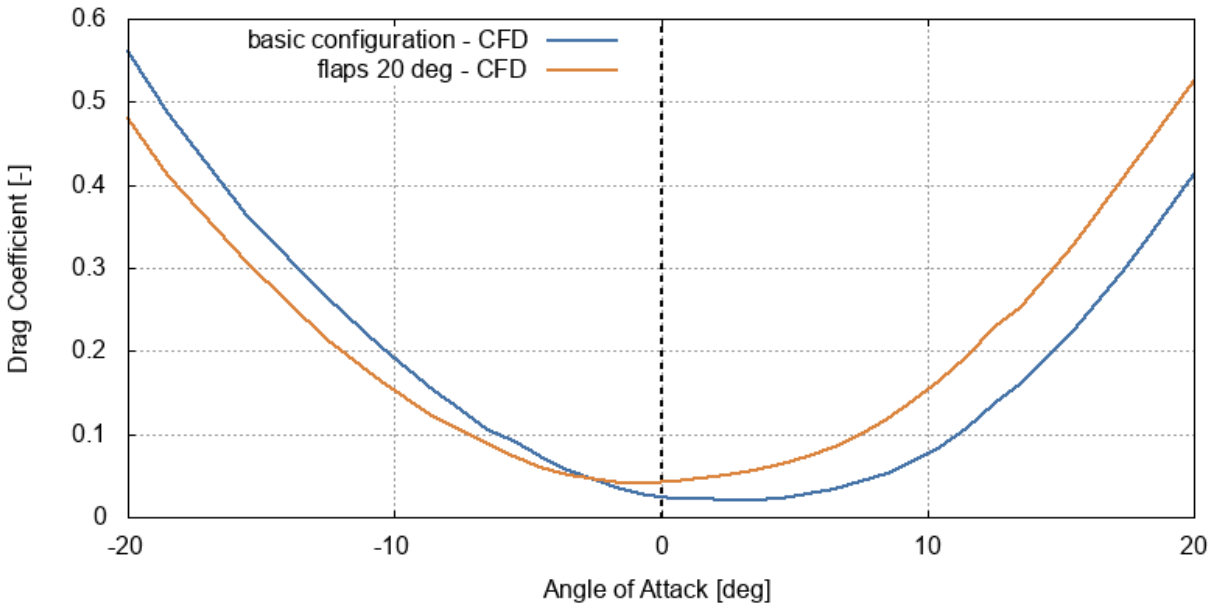


Lift coefficient

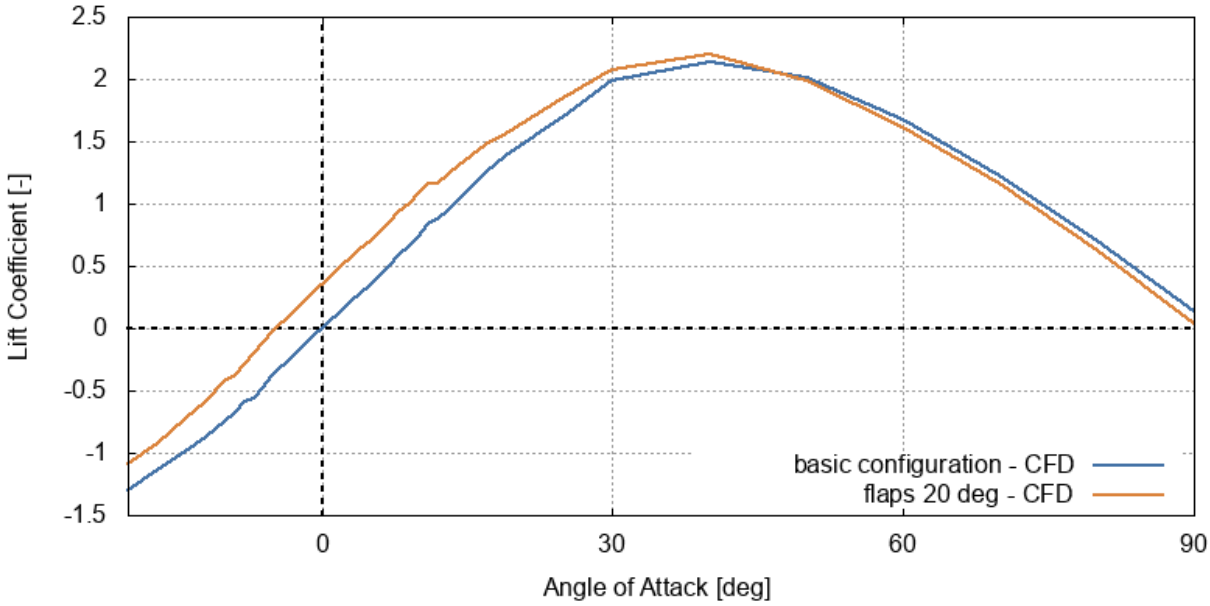


Streamlines and kinematic pressure distribution for various angles of attack

CFD results for basic configuration and flaps 20-degree deflection are shown in the following figures.

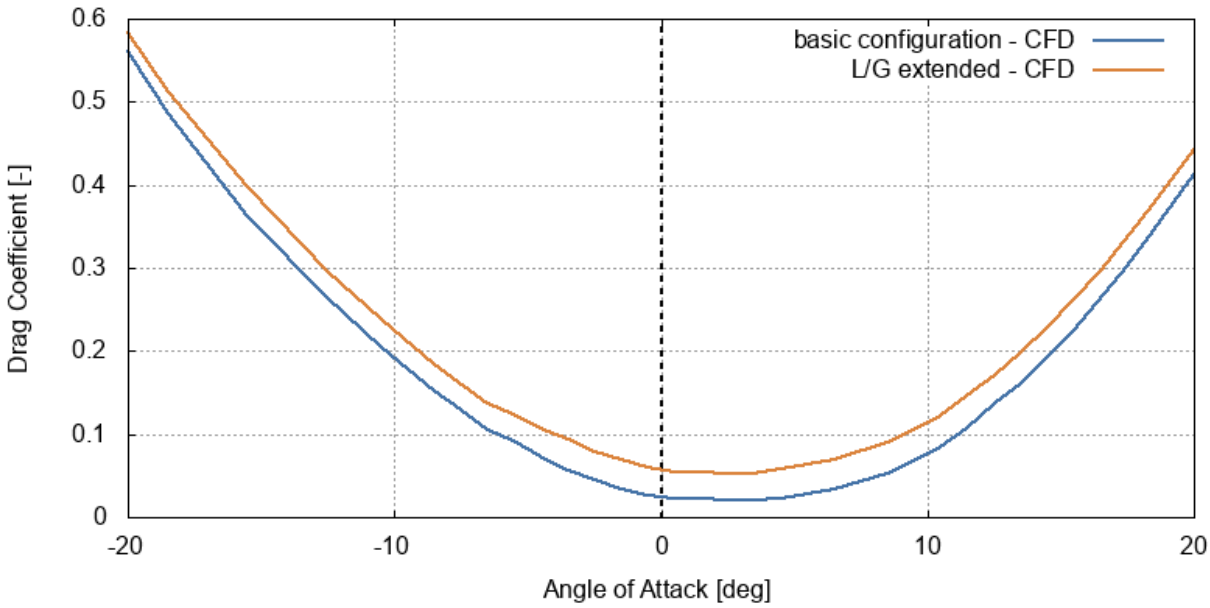


Drag coefficient



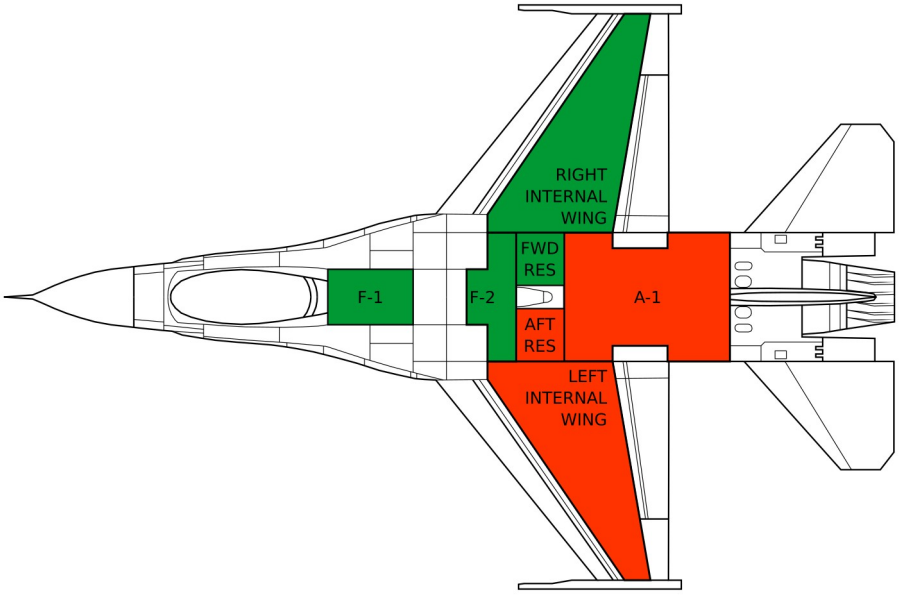
Lift coefficient

Comparison of drag coefficient computed with OpenFOAM for retracted and extended landing gear are shown in the following figure.



Drag coefficient

5. Mass Data



F-16 fuel tanks

Data given in [1] and [2] were used to calculate empty aircraft inertia tensor and center of mass coordinates. Results are given in the following table.

Parameter	**Value**
Center of mass x-coordinate	-0.36 m
Center of mass y-coordinate	0.00 m
Center of mass z-coordinate	0.01 m
Moment of inertia I_x	10 842.3 kg·m^2
Moment of inertia I_y	73 859.7 kg·m^2
Moment of inertia I_z	81 783.4 kg·m^2
Cross product of inertia I_{xy}	0.0 kg·m^2
Cross product of inertia I_{xz}	-1 560.6 kg·m^2
Cross product of inertia I_{yz}	0.0 kg·m^2

Empty aircraft inertia tensor and center of mass coordinates

Structure group	**Weight [kg]**	**Coordinates [m]**			**First moment of mass [kg·m]**			**Moment of inertia (Body Axis System) [kg·m^2]**					
		x	y	z	S_X	S_Y	S_Z	I_x	I_y	I_z	I_{xy}	I_{xz}	I_{yz}
Empty aircraft	8 910	-0.36	0.00	0.01	-3 218.0	0.0	56.0	10 842.3	73 859.7	81 783.4	0.0	-1 560.6	0,0
Pilot	80	4.10	0.00	-0.70	328.0	0.0	-56.0	39.2	1 384.0	1 344.8	0.0	229.6	0,0
Left Internal Wing	154.5	-1.18	-2.54	0.00	-182.3	-392.4	0.0	996.8	215.1	1 211.9	-463.1	0.0	0,0
Right Internal Wing	154.5	-1.18	2.54	0.00	-182.3	392.4	0.0	996.8	215.1	1 211.9	463.1	0.0	0,0
F-1, F-2, Fwd Reservoir	0	1.53	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0,0
A-1, Aft Reservoir	0	-2.31	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0,0
Gross weight	9 299	-0.35	0.00	0.00	-3 254.7	0.0	0.0	12 875.0	75 674.0	85 552.0	0.0	-1 331.0	0.0

Mass data intermediate results

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