

The effect of buoyancy on the boundary layer about a heated  
horizontal circular cylinder in axial streaming

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TABLE 2. Flow Parameters for Section 4

x	f <sup>1</sup> (x,0)	d1	d2	$\phi = 1$				$\phi = 2$				
				-t <sup>1</sup> (x,0)	w <sup>1</sup> (x,0)	dt	dw	-t <sup>2</sup> (x,0)	w <sup>2</sup> (x,0)	dt	dw	x (for $\phi = 2$ )
0.02	1.3419	1.7208	0.6674	0.5249	0.4824	1.0431	0.0041	0.8521	0.3894	0.4237	0.0019	0.02
0.04	1.3558	1.7212	0.6707	0.5313	0.4813	1.0494	0.0082	0.8598	0.3884	0.4255	0.0037	0.04
0.08	1.3829	1.7224	0.6775	0.5437	0.4792	1.0619	0.0160	0.8748	0.3863	0.4292	0.0073	0.08
0.12	1.4094	1.7238	0.6843	0.5559	0.4771	1.0743	0.0236	0.8894	0.3844	0.4329	0.0107	0.12
0.20	1.4613	1.7274	0.6953	0.5797	0.4731	1.0986	0.0380	0.9251	0.3798	0.4420	0.0189	0.22
0.40	1.5848	1.7396	0.7296	0.6364	0.4639	1.1574	0.0705	0.9925	0.3714	0.4596	0.0335	0.42
0.60	1.7009	1.7550	0.7602	0.6898	0.4553	1.2133	0.0899	1.0560	0.3638	0.4763	0.0464	0.62
0.80	1.8115	1.7724	0.7897	0.7405	0.4474	1.2663	0.1246	1.1163	0.3569	0.4925	0.0579	0.82
1.00	1.9173	1.7912	0.8182	0.7891	0.4399	1.3164	0.1479	1.1741	0.3504	0.5080	0.0683	1.02
1.40	2.1176	1.8314	0.8728	0.8813	0.4260	1.4071	0.1889	1.2782	0.3392	0.5365	0.0857	1.40
1.80	2.3064	1.8736	0.9244	0.9682	0.4134	1.4849	0.2241	1.3812	0.3284	0.5650	0.1014	1.80
2.20	2.4856	1.9160	0.9734	1.0513	0.4016	1.5501	0.2546	1.4791	0.3186	0.5923	0.1153	2.20
2.56	2.6406	1.9538	1.0151	1.1230	0.3917	1.6000	0.2784	1.5497	0.3118	0.6121	0.1246	2.50
2.96	2.8063	1.9948	1.0589	1.2013	0.3812	1.6441	0.3016	1.6628	0.3013	0.6441	0.1386	3.00
3.36	2.9667	2.0342	1.0999	1.2773	0.3714	1.6804	0.3215	1.7497	0.2936	0.6688	0.1485	3.40
3.76	3.1220	2.0718	1.1381	1.3518	0.3619	1.7094	0.3386	1.8337	0.2863	0.6929	0.1577	3.80
4.16	3.2730	2.1070	1.1736	1.4250	0.3529	1.7323	0.3532	1.9153	0.2794	0.7162	0.1660	4.20

TABLE 4. Flow Parameters for Section 8

$x$	$\xi$	$F_{\eta}(\xi, 0)$	$-t_{\eta}(\xi, 0)$	$u_{\eta}(\xi, 0)$	$F(\xi, \infty)$	$F_{\xi}(\xi, \infty)$	$dw$	$dt$	$du$
0.01100	0.00191	0.73358	.53470	.37990	0.89393	-0.00027 $\alpha$	.20721	.26717	.37989
0.05000	0.01389	0.73356	.53469	.37971	0.88996	$\beta$	.20625	.26660	.37928
0.10200	0.03581	0.73354	.53475	.37972	0.88957	$\beta$	.20619	.26653	.37920
0.30200	0.15173	0.73383	.53497	.37989	0.88983	$\beta$	.20634	.26653	.37920
0.72200	0.48022	0.73563	.53609	.38079	0.89101	0.005	.20749	.26670	.37948
1.02200	0.75416	0.73936	.53834	.38263	0.89315	0.007	.20981	.26704	.38003
1.54200	1.26483	0.74570	.54219	.38574	0.89698	0.006	.21366	.26754	.38086
2.02200	1.73968	0.70062	.55088	.39273	0.90381	0.018	.22205	.26849	.38241
2.26200	1.96601	0.77466	.55878	.39904	0.90874	0.023	.22935	.26917	.38351
2.50200	2.17765	0.79954	.57218	.40962	0.91524	0.031	.24120	.27006	.38496
2.66200	2.30707	0.82998	.58772	.42177	0.92084	0.038	.25430	.27083	.38622
2.82200	2.42368	0.89024	.61634	.44396	0.92795	0.050	.27720	.27185	.38786
2.90200	2.47572	0.94936	.64241	.46390	0.93228	0.063	.29700	.27250	.38890
2.98200	2.52230	1.06410	.68900	.49919	0.94282*	$\beta$	.33063	.27331	.39020

$\alpha$  Value computed from series solution.  
 $\beta$  Changes in  $F(\xi, \infty)$  are too small here to permit a worthwhile determination of  $F_{\xi}(\xi, \infty)$ .  
 \* This value has been corrected by replacing negative values of  $F_{\eta}$  in the profile by  $\beta$  zero.