MATHEMATISCH CENTRUM
2e BOERHAAVESTRAAT 49
AMSTERDAM
REKENAFDELING

Computation of the thrustcoefficients c_{s_o} for a three bladed propeller in a homogeneous flow

by

The Staff of the Computation Department

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1. On behalf of the Netherlands Ship Model Basin the thrust-constant Cs_o defined by

$$Cs_o = 8 \int_0^1 \frac{1 - \eta_{p_i}}{\eta_{p_i}^2} \left[\frac{\kappa(\lambda_i, x) x^3}{x^2 + \lambda_i^2} - \frac{1 - \eta_{p_i}}{\eta_{p_i}^2} \lambda^2 \frac{\kappa(\lambda_i, x) x^3}{(x^2 + \lambda_i^2)^2} \right] dx$$

was computed as a function of λ_i and η_{p_i}.

2. Results:

$1/\lambda_i \rightarrow$	1	2.5	4	5	10
η_{r_i}					
0.5	.6882	2.930	4.565	5.263	6.763
0.6	.4223	1.686	2.582	2.961	3.773
0.7	.2547	.9615	1.448	1.652	2.088
0.75	.1929	.7096	1.060	1.207	1.519
0.8	.1412	.5072	.7518	.8536	1.070
0.85	.09757	.3424	.5037	.5706	.7123
0.9	.06024	.2069	.3021	.3414	.4245
0.92	.04680	.1594	.2320	.2620	.3252
0.94	.03411	.1152	.1673	.1887	.2338
0.95	.02803	.09429	.1367	.1541	.1909
0.96	.02211	.07410	.1073	.1209	.1496
0.97	.01636	.05460	.07893	.08891	.1099
0.98	.01076	.03577	.05164	.05814	.07183
0.99	.005308	.01758	.02534	.02852	.03521