

List of Available Ship Models



"Pearl of Scandinavia"

FORCE Technology mathematical models

FORCE Technology has an extensive list of own ship models as well as target ships. The vast majority of these models are developed in connection with projects modeling real ships, where the manoeuvring behaviour has been evaluated and tuned.

The mathematical models developed by FORCE Technology are based on the classic work of Professor Abkowitz. The forces acting on the hull are found as functions of longitudinal speed, transverse speed and turning rate, whereas the forces from rudder and propeller are found as functions of the same variables in connection with propeller revolutions and rudder angle.

The type of mathematical model now used by FORCE Technology was developed during the 1990s, and at

the moment about 250 models of different ships are available.

A majority of the models are based on extensive tests with the Planar Motion Mechanism in FORCE Technology's model tank. The purpose of this is to build a "state-of-the-art" simulator model covering six degrees of freedom in the sailing mode and the harbour-maneuvring mode. The tests are used to find the hull forces as well as forces from the pods and their interaction with the hull at different speeds.

The mathematical models from FORCE Technology are run by the state-of-the-art model keeper DEN-Mark1, which is a part of SimFlex Navigator and available for other simulation platforms as well.

Ship	Ship Type	Load	Loa	Lpp	Width	Draft F.	Draft A.	Disp.	Propellers	Rudders	Bow T.	Stern T.
No.		Con.	m	m	m	m	m	m ³				
3130	Barge	L	60	60	30.0	1.6	1.6	2,400	0	0	0	0
3120	Bulker 35,000 DWT	L	175	169	25.0	11.2	11.2	36,407	1C	1	1	1
3284	Bulker 42,000 DWT	B	198	188	32.2	6.5	6.5	29,500	1F	1	0	0
3265	Bulker 80,000 DWT	L	227	217	36.0	13.5	13.5	86,400	1F	1	0	0
3108	Bulker 84,000 DWT	½L	229	219	32.2	11.6	11.6	67,500	1F	1	0	0
3234	Bulker 84,000 DWT	B	229	219	32.2	8.0	8.0	45,126	1F	1	1	0
3268	Bulker 84,000 DWT	B	229	219	32.2	9.6	9.6	55,100	1F	1	1	0
3113	Bulker 115,000 DWT	L	288	274	43.4	15.0	15.0	135,000	1F	1	0	0
3110	Bulker 125,000 DWT	L	285	265	43.0	16.0	16.0	140,000	1F	1	0	0
3218	Bulker 125,000 DWT	L	285	265	43.0	16.0	16.0	140,000	1F	1	1	1
3224	Bulker 125,000 DWT	L	285	265	43.0	16.0	16.0	140,000	1F	1Sch	1	1
3178	Bulker 150,000 DWT	L	290	278	44.2	15.2	15.2	150,100	1F	1	0	0
3159	Cable Layer	L	136	123	19.4	6.6	6.6	11,173	1F	1	1+1AZ	2AZ
3200	Cable Layer	L	140	124	23.4	7.3	7.3	15,841	2F, Nozz	2F	2+1AZ	2
3205	Cable Layer	L	143	123	23.4	7.2	7.2	12,206	2C	2	2	2
3181	Cable Layer	L	150	133	20.8	6.6	6.6	11,173	1F	1	1+1AZ	2AZ
3040	Car Carrier	½L	198	190	32.3	9.5	9.5	33,551	1F	1	1	0
3140	Car Carrier	B	198	190	32.3	7.0	7.0	25,500	1F	1	1	0
3131	Catamaran Ferry	S	87	74	24.0	3.5	3.9	1,267	4WJ	4WJ	2	0
3132	Catamaran Ferry	S	91	74	26.0	3.7	3.7	1,300	4WJ	4WJ	0	0
3111	Catamaran Ferry	S	122	96	25.8	3.9	3.9	1,756	4WJ	4WJ	2	0
3134	Coaster	L	55	50	9.3	3.5	3.5	1,200	1C	1	0	0
3049	Cont.Ship 1,000 TEU	L	149	137	22.7	7.7	7.7	16,866	1C	1	1	1
3212	Cont.Ship 1,000 TEU	L	152	162	28.2	9.5	9.5	26,276	1F	1	1	1
3156	Cont.Ship 1,100 TEU	L	155	145	25.0	8.4	8.4	19,659	1F	1	1	0
3050	Cont.Ship 1,100 TEU	L	159	150	27.8	10.3	10.3	32,986	1C	1	1	1
3058	Cont.Ship 1,500 TEU	L	191	180	27.8	10.3	10.3	37,100	1F	1	1	1
3213	Cont.Ship 1,800 TEU	L	193	182	27.8	8.0	8.0	27,306	1F	1	1	0
3118	Cont.Ship 2,000 TEU	L	180	168	26.0	10.0	10.0	30,385	1C	1	1	1
3051	Cont.Ship 2,000 TEU	L	190	180	28.0	10.0	10.0	40,255	1C	1	1	1
3233	Cont.Ship 2,200 TEU	L	216	206	32.2	11.0	11.0	48,571	1F	1	1	0
3185	Cont.Ship 2,500 TEU	½L	245	231	32.2	9.6	9.6	43,500	1F	1	1	1
3186	Cont.Ship 2,500 TEU	½L	245	231	32.2	9.9	9.9	45,000	1F	1	1	1
3229	Cont.Ship 2,500 TEU	B	245	231	32.2	7.5	7.5	31,500	1F	1	1	1
3230	Cont.Ship 2,500 TEU	L	245	231	32.2	12.0	12.0	56,500	1F	1	1	1
3257	Cont.Ship 3,000 TEU	L	237	225	32.2	11.6	11.6	51,476	1F	1	1	1
3262	Cont.Ship 3,000 TEU	L	237	225	32.2	12.3	12.3	55,395	1F	1	1	1
3115	Cont.Ship 3,500 TEU	L	256	245	32.2	12.8	12.8	63,919	1F	1	1	1
3072	Cont.Ship 3,500 TEU	L	256	245	32.2	12.8	12.8	63,919	1C	1	1	1
3052	Cont.Ship 3,500 TEU	L	256	245	32.2	12.8	12.8	63,919	1F	1	1	1
3168	Cont.Ship 3,700 TEU	L	292	273	32.2	13.2	13.2	70,512	1F	1	0	0

Ship No.	Ship Type	Load Con.	Loa m	Lpp m	Width m	Draft F. m	Draft A. m	Disp. m³	Propellers	Rudders	Bow T.	Stern T.
3011	Cont.Ship 4,000 TEU	L	294	280	32.2	11.5	11.5	65,366	1F	1	1	0
3012	Cont.Ship 4,000 TEU	B	294	280	32.2	7.3	7.3	36,515	1F	1	1	0
3179	Cont.Ship 4,000 TEU	L	266	252	37.3	12.2	12.2	69,046	1F	1	1	1
3193	Cont.Ship 4,000 TEU	B	266	252	37.3	5.0	9.5	36,679	1F	1	1	1
3216	Cont.Ship 4,100 TEU	L	281	268	32.2	12.5	12.5	71,736	1F	1	1	0
3060	Cont.Ship 4,200 TEU	½L	294	285	32.2	10.5	10.5	60,800	1F	1	1	1
3290	Cont.Ship 4,200 TEU	XB	294	278	32.2	6.5	6.5	27,193	1F	1	1	1
3053	Cont.Ship 4,200 TEU	L	294	285	32.2	13.1	13.1	75,858	1F	1	1	0
3099	Cont.Ship 4,300 TEU	L	292	277	32.3	12.2	12.2	70,238	1F	1	1	1
3217	Cont.Ship 4,400 TEU	L	294	279	32.2	13.0	13.0	77,587	1F	1	1	0
3064	Cont.Ship 4,800 TEU	L	318	303	42.8	14.0	14.0	115,976	1F	1F	2	1
3258	Cont.Ship 4,800 TEU	L	318	303	42.8	13.0	13.0	107,500	1F	1F	2	1
3054	Cont.Ship 4,800 TEU	L	319	301	43.5	14.0	14.0	116,939	2F	2	1	0
3086	Cont.Ship 6,600 TEU	XB	347	332	42.8	6.5	6.5	52,135	1F	1	1	2
3096	Cont.Ship 6,600 TEU	L	347	332	42.8	14.0	14.0	133,276	1F	1	1	2
3106	Cont.Ship 6,600 TEU	½L	347	331	42.8	13.0	13.0	124,448	1F	1	2	1
3166	Cont.Ship 6,600 TEU	L	347	332	42.8	13.4	13.4	127,400	1F	1	1	2
3176	Cont.Ship 6,600 TEU	L	347	332	42.8	14.3	14.3	136,132	1F	1	1	2
3177	Cont.Ship 6,600 TEU	½L	347	332	42.9	11.6	11.6	115,400	1F	1	1	2
3199	Cont.Ship 6,600 TEU	L	347	332	42.8	14.5	14.5	137,845	1F	1	1	2
3092	Cont.Ship 6,600 TEU	B	347	332	42.8	10.0	10.0	87,899	1F	1	1	2
3095	Cont.Ship 6,600 TEU	B	347	332	42.8	10.0	10.0	87,899	1F	1	1	2
3202	Cont.Ship 9,200 TEU	L	350	334	45.6	14.5	14.5	147,700	1F	1	2	0
3227	Cont.Ship 12,500 TEU	L	400	378	54.2	14.5	14.5	184,184	2F	2	3	0
3279	Cruise Ship	L	132	123	19.4	6.6	6.6	11,173	1F	1	1+1AZ	2AZ
3077	Cruise Ship	S	177	157	29.0	6.2	6.2	18,700	2C	2	2	0
3143	Cruise Ship	S	200	171	28.6	8.5	8.5	27,100	2F	1	2	0
3209	Cruise Ship	S	200	173	28.8	7.1	7.1	22,000	2	2	2	0
3121	Cruise Ship	S	225	196	29.2	9.5	9.5	29,333	2C	2	2	0
3068	Cruise Ship	S	226	197	29.2	7.8	7.8	24,193	2C	2	2	0
3084	Cruise Ship	L	241	205	29.6	7.5	7.5	27,660	2C	2F	2	0
3100	Cruise Ship	S	261	224	32.2	8.2	8.2	36,826	2C	2	3	1
3098	Cruise Ship	S	268	236	32.2	7.7	8.0	37,987	2F	2	2	1
3167	Cruise Ship	S	279	235	32.2	7.6	7.6	37,970	2F	2F	2	1
3180	Cruise Ship	S	290	242	36.0	8.1	8.1	49,265	2F	2	3	3
3169	Cruise Ship	S	292	264	32.2	8.0	8.0	37,500	0	0	3	2AZ
3145	Cruise Ship	S	294	263	32.2	8.2	8.2	38,000	0	0	3	2AZ
3164	Cruise Ship	S	294	265	32.2	8.0	8.0	44,435	0	0	2	2AZ
3182	Cruise Ship	S	298	265	32.2	8.0	8.0	38,000	0	0	3	2AZ
3281	Cruise Ship	S	305	272	32.2	8.0	8.0	45,197	2F	2	3	3
3188	Cruise Ship	S	316	290	33.7	10.3	10.3	54,700	2F	1	3	2

Ship No.	Ship Type	Load Con.	Loa m	Lpp m	Width m	Draft F. m	Draft A. m	Disp. m³	Propellers	Rudders	Bow T.	Stern T.
3208	Cruise Ship	S	200	173	28.8	7.1	7.1	22,000	0	0	2	2AZ
3104	Cruise Ship	S	246	201	32.2	7.5	8.0	32,517	2F	1	2	1
3197	Cruise Ship	S	251	222	28.8	6.8	6.8	23,850	0	0	2	2AZ
3061	Cruise Ship	S	264	222	32.0	7.6	7.6	33,067	2F	2	2	0
3263	Cruise Ship	S	293	261	32.2	8.0	8.0	43,437	0	0	3	2AZ
3067	Cruise Ship	S	294	270	32.0	9.9	9.9	49,708	2F	1	2	0
3094	Fast Ferry	L	148	128	18.3	3.9	3.9	3,927	4WJ	2WJ	2	0
3184	Fast Ferry	S	125	110	18.7	2.5	2.5	1,856	4WJ	4WJ	2	0
3238	Fast Ferry	S	125	110	18.7	2.5	2.5	1,856	4WJ	4WJ	2	0
3093	Fast Ferry	L	71	65	10.5	2.3	2.3	630	2F+1WJ	2	1	0
3153	Ferry	S	40	37	9.1	3.5	2.9	476	2C	2	1	0
3114	Ferry	S	61	54	10.3	3.5	3.5	1,241	2C	2	1	0
3162	Ferry	S	86	81	18.0	4.0	4.0	3,406	0	0	2AZ	2AZ
3264	Ferry	S	93	84	16.5	4.2	4.2	3,015	2C	2	1	0
3124	Ferry	S	96	90	15.0	3.6	3.6	2,962	0	0	2AZ	2AZ
3116	Ferry	S	110	106	27.0	5.1	5.1	7,228	0	0	2AZ	2AZ
3273	Ferry	S	111	106	27.6	4.6	4.6	5,336	0	0	2AZ	2AZ
3056	Ferry	S	121	109	21.5	5.2	5.2	7,640	2C	2	1	0
3158	Ferry	S	134	126	24.0	5.5	5.5	10,708	2C	2J	2	1
3085	Ferry	L	138	134	24.8	5.8	5.8	8,721	0	0	2AZ	2AZ
3215	Ferry	L	138	134	24.8	5.5	5.5	8,271	0	0	2AZ	2AZ
3210	Ferry	L	142	134	24.8	5.8	5.8	8,721	0	0	2AZ	2AZ
3005	Ferry	S	152	143	23.1	5.1	5.1	10,015	2C	2+1	1	0
3275	Ferry	S	152	143	23.1	5.1	5.1	10,015	2C	2J+1	1	0
3152	Ferry	S	152	143	23.1	5.1	5.1	10,015	2C	2J+1	1	0
3144	Ferry	S	154	136	24.2	5.7	6.0	12,078	2C	2	2	0
3272	Ferry	S	161	144	27.6	6.0	6.4	16,159	2C	2F	2	0
3283	Ferry	S	165	152	30.0	4.5	6.0	15,000	2C	2	2	0
3203	Ferry	S	167	150	28.4	6.8	6.8	16,950	2C	2	2	0
3042	Ferry	S	168	153	27.6	6.5	6.5	17,402	2C	2	2	1
3157	Ferry	S	169	155	24.0	5.8	5.8	16,397	2C	2F	2	0
3138	Ferry	S	169	150	27.6	6.2	6.4	16,209	2C	2R	2	0
3139	Ferry	S	169	150	27.6	6.2	6.4	16,209	2C	2R	2	0
3137	Ferry	S	177	160	28.4	6.5	6.7	17,606	2C	2	2	0
3207	Ferry	S	191	173	26.0	6.1	6.9	19,635	2C	2	2	1
3172	Ferry	L	197	176	25.0	6.4	6.4	16,860	2C	2F	2	0
3083	Ferry	S	200	186	29.0	7.5	7.5	23,265	2C	2+1	3	0
3160	Ferry	S	210	188	27.6	6.4	6.4	22,961	2C	2J	2	0
3228	Ferry	S	219	197	34.6	6.7	6.7	29,550	2C	2	3	1+1AZ
3154	Ferry	S	45	40	12.5	3.0	3.0	925	0	0	1	2AZ
3171	Ferry	S	125	119	19.5	5.3	5.3	7,900	2C	2J	2	0

Ship No.	Ship Type	Load Con.	Loa m	Lpp m	Width m	Draft F. m	Draft A. m	Disp. m³	Propellers	Rudders	Bow T.	Stern T.
3232	Ferry	S	139	123	22.7	5.6	5.6	8,160	2C	2F	2	0
3282	Ferry	S	141	127	22.8	5.8	5.8	10,808	2C	2	2	1
3274	Ferry	S	152	143	23.1	5.1	5.1	10,015	2C	2J+1	1	0
3261	Ferry	S	165	150	28.4	6.5	6.5	15,533	2C	2	2	1
3237	Ferry	S	165	152	30.0	6.0	6.0	17,165	2C	2	2	0
3136	Ferry	S	169	150	27.6	6.2	6.4	16,209	2C	2R	2	0
3204	Ferry	S	184	169	27.8	6.0	6.0	17,127	2C	2F	2	0
3073	Ferry	S	205	182	26.6	5.6	6.6	18,998	2C	2	2	0
3225	Ferry	S	226	197	35.0	6.8	6.8	31,354	2C	2	3	1+1AZ
3135	Freighter	L	96	85	18.3	5.5	5.5	5,427	1C	1	0	0
3014	Freighter	L	156	150	24.9	9.1	9.1	26,893	1F	1	1	0
3128	Freighter	L	156	150	24.9	9.1	9.1	26,893	1F	1	1	0
3123	Freighter	L	164	151	24.0	9.5	9.5	22,163	1C	1	1	1
3003	Frigate	S	113	108	12.0	3.7	3.7	2,647	2C	2	0	0
3127	Frigate	S	134	123	17.0	4.4	4.6	4,288	2C	2	0	0
3287	Frigate	S	113	100	14.4	4.5	6.0	3,404	1C	1F	1	1
3221	FSO	L	298	294	62.0	21.5	21.5	368,779	0	0	0	0
3222	FSO	B	298	294	62.0	8.3	8.3	139,488	0	0	0	0
3206	Gas Tanker 5,000 DWT	L	110	105	16.0	5.9	5.9	7,166	1F	1F	1	0
3226	Gas Tanker 5,700 DWT	L	110	105	16.0	6.5	6.5	7,920	1F	1F	1	0
3214	Icebreaker	S	105	91	22.5	7.6	7.6	7,018	2F+2F	2	0	0
3022	Laker	L	223	216	22.9	8.0	8.0	34,260	1F	1	1	0
3023	Laker	B	223	216	22.9	5.0	5.0	20,625	1F	1	1	0
3125	LNG Carrier 115,000 cbm	B	278	269	43.0	9.6	9.6	83,150	1F	1	1	0
3013	LNG Carrier 126,000 cbm	L	288	274	43.4	11.5	11.5	98,442	1F	1	0	0
3126	LNG Carrier 126,000 cbm	B	288	274	48.2	10.1	10.1	90,443	1F	1	1	0
3223	LNG Carrier 135,000 cbm	½L	288	274	48.2	10.3	10.3	94,278	1F	1	1	0
3255	LNG Carrier 135,000 cbm	L	288	274	48.2	11.5	12.3	110,200	1F	1	1	0
3256	LNG Carrier 138,000 cbm	B	279	266	42.6	10.5	10.5	87,424	1F	1	1	0
3239	LNG Carrier 200,000 cbm	B	345	330	51.0	10.0	10.0	120,000	1F	1	1	0
3240	LNG Carrier 200,000 cbm	L	345	330	51.0	12.0	12.0	150,000	1F	1	1	0
3247	LPG Carrier 40,000 cbm	L	195	180	29.0	11.5	11.5	43,500	1F	1	1	0
3248	LPG Carrier 40,000 cbm	B	195	180	29.0	6.8	8.2	28,300	1F	1	1	0
3249	LPG Carrier 80,000 cbm	L	229	215	32.2	12.5	12.5	68,054	1F	1	1	0
3250	LPG Carrier 80,000 cbm	B	229	215	32.2	7.0	9.0	42,300	1F	1	1	0
3251	LPG Carrier 100,000 cbm	L	260	245	42.0	12.5	12.5	90,000	1F	1	0	0
3252	LPG Carrier 100,000 cbm	B	260	245	42.0	7.5	9.5	59,476	1F	1	0	0
3004	Minehunter	S	44	42	8.2	2.5	2.5	366	2F	2	1	0
3286	Naval Support Vessel	S	129	125	19.5	4.7	4.7	5,327	2C	2F	1	0
3318	Patrol Boat	S	18	17	3.1	0.9	1.1	21	2F	2	0	0
3063	Ro-Ro Ferry	S	136	125	24.0	5.1	5.1	9,275	2C	2F	2	0

Ship	Ship Type	Load	Loa	Lpp	Width	Draft F.	Draft A.	Disp.	Propellers	Rudders	Bow T.	Stern T.
No.		Con.	m	m	m	m	m	m ³				
3109	Ro-Ro Ferry	L	152	143	23.1	5.1	5.1	10,015	2C	2	1	0
3103	Ro-Ro Ferry	½L	183	167	25.2	5.7	5.7	14,700	1C	1F	2	1
3253	Ro-Ro Ferry	L	183	167	25.2	7.8	7.8	21,248	1C	1F	2	1
3297	Ro-Ro Ferry	L	200	190	26.5	7.7	7.7	21,248	1C	1F	2	1
3296	Stern Trawler	L	41	36	9.6	5.4	5.4	1,307	1C	1	1	0
3294	Stern Trawler	L	41	36	9.6	5.4	5.4	1,307	1C	1	1	0
3295	Stern Trawler	L	41	36	9.6	5.4	5.4	1,307	1C	1	1	0
3133	Stern Trawler	L	41	36	9.6	5.4	5.4	1,307	1C	1	1	0
3006	Supply Vessel	S	65	56	13.8	4.5	4.5	2,110	2C	2	2	0
3148	Supply Vessel	½L	74	64	16.4	6.2	6.2	4,593	2C	2	1+1AZ	1
3149	Supply Vessel	½L	74	64	16.4	6.2	6.2	4,593	2C	2	1+1AZ	1
3150	Supply Vessel	½L	74	64	16.4	6.2	6.2	4,593	2C	2	1+1AZ	1
3151	Supply Vessel	½L	74	64	16.4	6.2	6.2	4,593	2C	2	1+1AZ	1
3183	Supply Vessel	½L	74	64	16.4	6.2	6.2	4,593	2C	2	1+1AZ	1
3254	Supply Vessel	½L	74	64	16.4	6.2	6.2	4,593	2C	2	1	1
3102	Supply Vessel	L	83	75	18.8	6.2	6.2	6,500	2C	2	1+1AZ	1
3280	Supply Vessel	L	95	82	16.2	7.2	7.2	9,000	2C	2	2	2
3285	Supply Vessel	L	143	123	23.4	7.2	7.2	12,206	2C	2	2	2
3194	Tanker 4,000 DWT	L	90	84	15.6	5.9	5.9	5,600	1F	1	1	1
3122	Tanker 14,000 DWT	L	128	120	20.0	9.3	9.3	17,765	1C	1	1	1
3173	Tanker 14,000 DWT	½L	128	120	20.0	8.0	8.0	15,200	1F	1	1	1
3174	Tanker 14,000 DWT	B	128	120	20.0	4.0	5.0	7,020	1F	1	1	1
3245	Tanker 20,000 DWT	L	175	164	23.1	9.8	9.8	28,780	1F	1	1	1
3246	Tanker 20,000 DWT	B	175	164	23.1	5.2	6.8	15,911	1F	1	1	1
3041	Tanker 27,000 DWT	L	175	164	23.1	9.1	9.1	26,560	1F	1	1	1
3163	Tanker 35,000 DWT	L	183	175	27.4	9.8	9.8	37,000	1F	1	1	0
3079	Tanker 35,000 DWT	L	185	173	26.0	10.5	10.5	26,565	1F	1	1	1
3080	Tanker 35,000 DWT	B	185	173	26.0	5.0	7.0	20,781	1F	1	1	1
3119	Tanker 40,000 DWT	L	180	174	27.2	11.4	11.4	43,085	1F	1	1	1
3196	Tanker 40,000 DWT	B	180	174	27.2	5.0	8.5	24,900	1F	1	1	1
3201	Tanker 45,000 DWT	B	180	171	32.2	6.9	8.3	32,060	1F	1	1	1
3189	Tanker 60,000 DWT	L	217	206	36.0	12.5	12.5	75,100	1F	1	0	0
3190	Tanker 60,000 DWT	B	217	206	36.0	7.3	7.3	43,000	1F	1	0	0
3191	Tanker 60,000 DWT	L	217	206	36.0	13.0	13.0	78,200	1F	1	0	0
3192	Tanker 60,000 DWT	B	217	206	36.0	6.5	8.0	43,000	1F	1	0	0
3195	Tanker 80,000 DWT	L	227	217	36.0	15.0	15.0	96,000	1F	1	0	0
3117	Tanker 84,000 DWT	B	229	219	32.2	5.7	8.3	39,000	1F	1	1	1
3235	Tanker 84,000 DWT	L	229	219	32.2	13.1	13.1	79,000	1F	1	0	0
3236	Tanker 84,000 DWT	L	229	219	32.2	15.0	15.0	89,500	1F	1	0	0
3244	Tanker 84,000 DWT	L	229	219	32.2	12.5	12.5	72,889	1F	1	0	0
3141	Tanker 84,000 DWT	B	229	219	32.2	5.0	7.0	33,429	1F	1	1	0

Ship No.	Ship Type	Load Con.	Loa m	Lpp m	Width m	Draft F. m	Draft A. m	Disp. m³	Propellers	Rudders	Bow T.	Stern T.
3101	Tanker 90,000 DWT	B	236	227	39.9	5.6	8.6	48,851	1F	1	1	0
3211	Tanker 100,000 DWT	L	239	229	42.0	14.9	14.9	118,519	1F	1	0	0
3082	Tanker 100,000 DWT	B	260	249	39.9	5.6	8.6	49,500	1F	1	1	0
3161	Tanker 110,000 DWT	L	245	233	42.0	12.0	12.0	95,250	1F	1	0	0
3267	Tanker 110,000 DWT	L	245	233	42.0	13.1	13.1	105,121	1F	1	0	0
3243	Tanker 145,000 DWT	½L	285	265	43.4	12.5	12.5	113,950	1F	1	0	0
3277	Tanker 145,000 DWT	B	285	265	43.4	10.7	10.7	97,500	1F	1	0	0
3107	Tanker 150,000 DWT	½L	269	259	48.0	13.5	13.5	137,958	1F	1	0	0
3259	Tanker 150,000 DWT	½L	269	259	48.0	13.0	13.0	132,800	1F	1	0	0
3260	Tanker 150,000 DWT	½L	269	259	48.0	14.0	14.0	143,200	1F	1	0	0
3045	Tanker 150,000 DWT	L	269	259	48.0	17.1	17.1	178,467	1F	1	0	0
3046	Tanker 150,000 DWT	B	269	259	48.0	8.0	9.8	88,494	1F	1	0	0
3175	Tanker 156,000 DWT	L	289	278	45.0	16.4	16.4	177,075	1F	1	0	0
3278	Tanker 156,000 DWT	L	289	279	45.0	17.0	17.0	179,100	1F	1	0	0
3017	Tanker 200,000 DWT	L	310	295	47.0	19.1	19.1	212,246	1F	1	0	0
3018	Tanker 200,000 DWT	B	310	295	47.0	8.5	8.5	88,850	1F	1	0	0
3269	Tanker 225,000 DWT	B	322	310	56.0	9.9	9.9	133,226	1F	1	0	0
3271	Tanker 225,000 DWT	XB	322	310	56.0	6.0	7.0	84,630	1F	1	0	0
3043	Tanker 225,000 DWT	½L	322	310	56.0	14.6	14.6	203,659	1F	1	0	0
3044	Tanker 225,000 DWT	B	322	310	56.0	9.2	10.7	133,226	1F	1	0	0
3112	Tanker 250,000 DWT	L	322	310	56.0	20.0	20.0	278,000	1F	1	0	0
3165	Tanker 300,000 DWT	B	343	327	56.4	10.4	10.4	152,000	1F	1	0	0
3241	Tanker 300,000 DWT	½L	344	327	56.4	12.5	12.5	184,428	1F	1	0	0
3242	Tanker 300,000 DWT	B	344	327	56.4	8.0	10.0	131,127	1F	1	0	0
3059	Tanker 300,000 DWT	L	344	327	56.4	21.8	21.8	344,500	1F	1	0	0
3081	Tanker 300,000 DWT	½L	344	327	56.4	14.9	14.9	231,214	1F	1	0	0
3170	Tanker 300,000 DWT	B	344	327	56.4	12.0	12.0	186,214	1F	1	0	0
3198	Tanker 300,000 DWT	½L	344	327	56.4	12.0	16.0	213,000	1F	1	0	0
3155	Tanker 308,000 DWT	L	333	319	58.0	21.0	21.0	314,501	1F	1	0	0
3219	Tanker 340,000 DWT	L	347	336	60.5	21.1	21.1	373,084	1F	1	0	0
3220	Tanker 340,000 DWT	B	347	336	60.5	9.9	9.9	174,205	1F	1	0	0
3266	Tanker 340,000 DWT	B	347	336	60.5	9.0	10.8	174,205	1F	1	0	0
3270	Tanker 500,000 DWT	XB	459	440	68.8	7.0	8.0	170,288	1F	1	0	0
3047	Tanker 500,000 DWT	B	459	440	68.8	9.5	10.6	241,722	1F	1	0	0
3048	Tug	L	69	62	15.5	6.3	6.4	4,857	2C	2	1	1

Abbreviations:

F:	Fixed pitch propeller	R:	Rotor rudder	L:	Loaded	XB:	Xtreme ballast
C:	Controlable pitch propeller	J:	Jastram rudder	1/2L:	Half-loaded		
WJ:	WaterJet	F:	Flap rudder	B:	Ballast		
AZ:	Azimuth thruster	Sch:	Schilling rudder	S:	Service		



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