

K. KAFALININ KAYICI TEKNELERİN GÜÇ HESAPLAMA YÖNTEMİ ÜZERİNE YORUM

Çok eski olan bu döküman (Temmuz 1960) o zamanın Tekneleri için geliştirilmiş bir yöntemdir. Bu yöntemi Yargılamak hedefimiz değildir. Yanlızca araştırmacılara Bu yöntemi geliştirmek üzere zemin hazırlamak ve günümüz kayıcı teknelerine uygun çözümler bulmaktır. Bu çözümler B/T oranı 3,5,6,7 gibi oranlarda Dep/Lwl Oranı ise 200,220,240 gibi değerler için geliştirilebilir. Yöntemin en hassas bileşeni olan Lcg nin yerinde bizler Hata yapmış olabiliriz. Ayrıca Dep/Lwl eğrilerinin birbirlerine yakın çizilmesi ölçerkende hata olasılığını Artırabilir.

Araştırmacıların günümüz teknelerinin B/T oranlarını Ve Dep/Lwl oranlarını inceleyerek metodu güncel Yapabilirler.

Savitsky hesaplama yönteminde örnek verilen tekne Boyutlarında Bpx çene genişliği dar olduğundan metodun sınırları dışındadır. Buradanda hata oluşabilir. Savitsky hesaplama yönteminde $Ca=4e-4$ olarak ve Blount Katsayısı 0.5 alınmıştır.

Araştırmacılara yardımcı olaması dileğiyle,

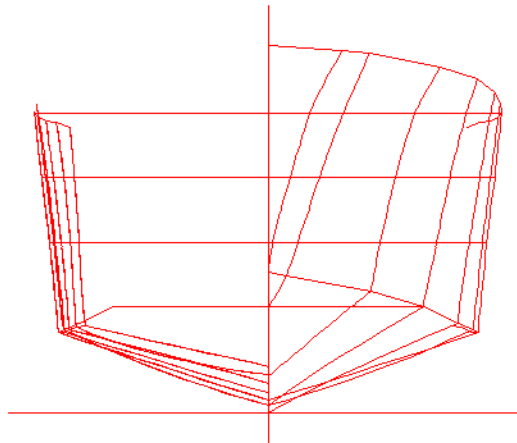
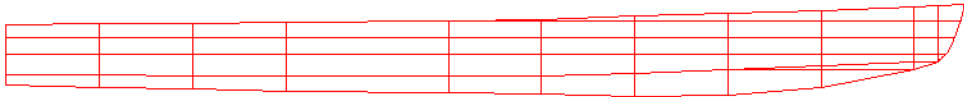
Oktay Çemberci
31 Mart 2007

$$B/d = 4$$

Dep/Lwl	Lwl	Dep - ton
40	18.832	9.436
80	13.317	6.672
120	10.873	5.448
160	9.416	4.718

Bwl	Twl	Bpx	Lpx	Deadrise	Lcg/Lpx -Kıçtan		
2.20	0.55	2.172	19.315	18.250	21.43	29.15	43.50
2.20	0.55	2.172	13.658	18.250	26.43	34.25	43.50
2.20	0.55	2.172	11.152	18.250	29.10	35.64	43.50
2.20	0.55	2.172	9.657	18.250	30.90	36.28	43.50

Tahmini Kafalin Teknesinin Replikasi



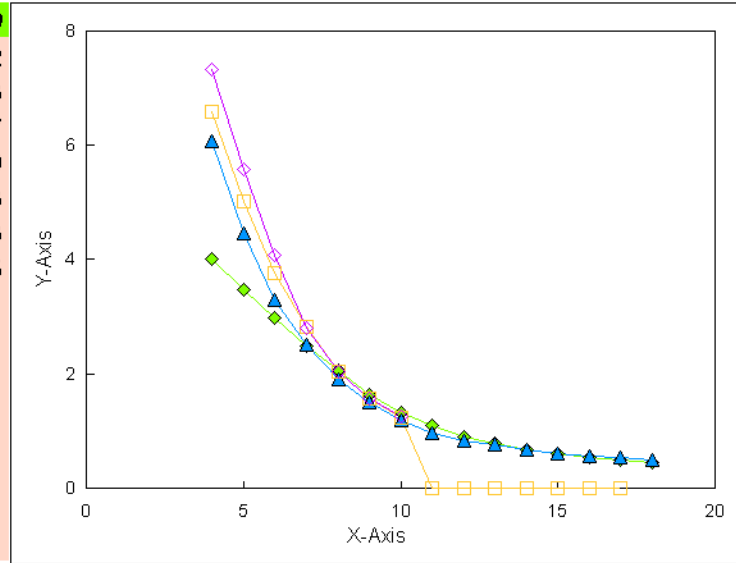
$B/T = 4.00$ $Dep/Lwl = 40.00$

B/D = 4

Lcg/Lwl	21.43	26.43	29.10	30.90
Dep/Lwl	40	80	120	160

Dep/Lwl	40	80	120	160
4	4.00397	6.06120	6.57899	7.32452
5	3.46705	4.44133	5.01616	5.57673
6	2.96597	3.29753	3.75077	4.06147
7	2.48213	2.49594	2.81025	2.79229
8	2.05209	1.89475	2.03412	2.02753
9	1.62033	1.48592	1.55922	1.56833
10	1.32199	1.18135	1.23055	1.24445
11	1.08332	0.95694		
12	0.89114	0.82867		
13	0.77180	0.74851		
14	0.66573	0.67639		
15	0.60607	0.61220		
16	0.53981	0.56409		
17	0.48014	0.52898		
18	0.44701	0.50000		

Speed/Bea

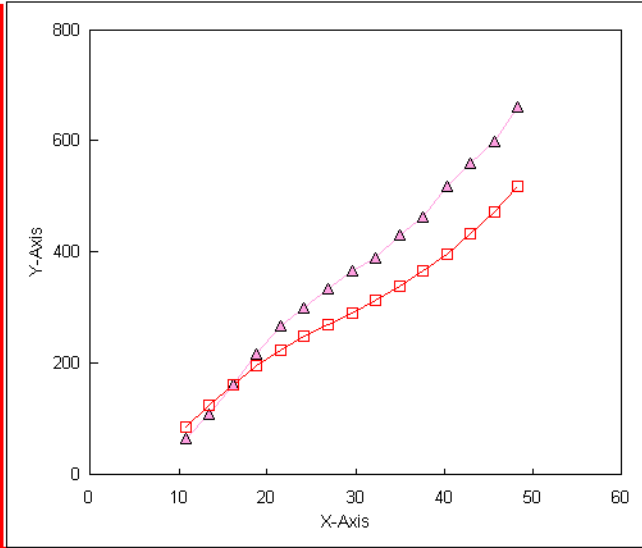


Lwl 18.832 metre Lpx 19.315 metre
 Bwl 2.200 metre Bpx 2.172 metre
 Twl 0.550 metre
 Dep 9.436 ton
 Lcg 21.430 Lcg/Lwl Lcg/Lpx 0.209 metre

Lwl/Bwl 8.560
 Bwl/Twl 4.000
 Dep/Lwl 40.00

Lcg 4.04 metre

Speed/Beam	V/B knots	C	EHP HP	Savitsky EHP
4	10.75	4.00397	64.97	85.08
5	13.43	3.46705	109.87	124.49
6	16.12	2.96597	162.42	161.38
7	18.81	2.48213	215.84	195.54
8	21.49	2.05209	266.36	224.50
9	24.18	1.62033	299.46	248.73
10	26.87	1.32199	335.15	270.30
11	29.55	1.08332	365.55	291.28
12	32.24	0.89114	390.39	313.55
13	34.93	0.77180	429.88	338.01
14	37.61	0.66573	463.12	365.52
15	40.30	0.60607	518.57	396.76
16	42.99	0.53981	560.55	432.14
17	45.67	0.48014	598.03	472.35
18	48.36	0.44701	660.92	517.36

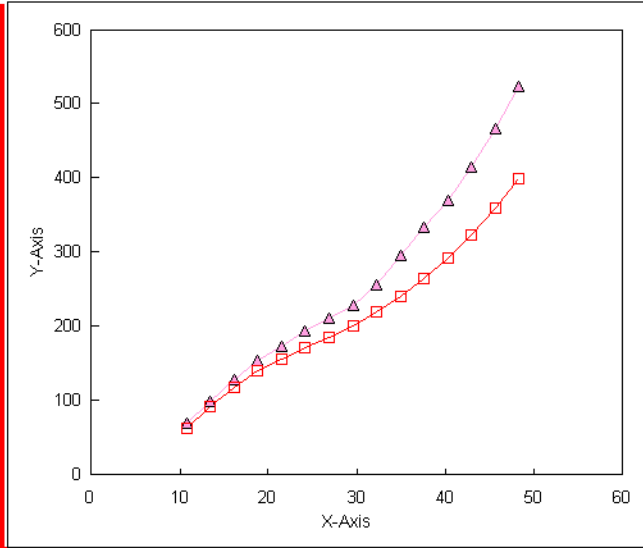


Lwl 13.317 metre Lpx 13.658 metre
 Bwl 2.200 metre Bpx 2.172 metre
 Twl 0.550 metre
 Dep 6.672 ton
 Lcg 26.430 Lcg/Lwl Lcg/Lpx 0.258 metre

Lwl/Bwl 6.053
 Bwl/Twl 4.000
 Dep/Lwl 80.00

Lcg 3.52 metre

Speed/Beam	V/B knots	C	EHP HP	Savitsky EHP
4	10.75	6.06120	69.54	61.95
5	13.43	4.44133	99.52	91.20
6	16.12	3.29753	127.68	117.81
7	18.81	2.49594	153.47	139.34
8	21.49	1.89475	173.91	156.16
9	24.18	1.48592	194.19	170.79
10	26.87	1.18135	211.78	185.28
11	29.55	0.95694	228.33	201.00
12	32.24	0.82867	256.70	219.04
13	34.93	0.74851	294.80	239.82
14	37.61	0.67639	332.72	263.82
15	40.30	0.61220	370.40	291.74
16	42.99	0.56409	414.20	323.40
17	45.67	0.52898	465.89	359.12
18	48.36	0.50000	522.74	399.50

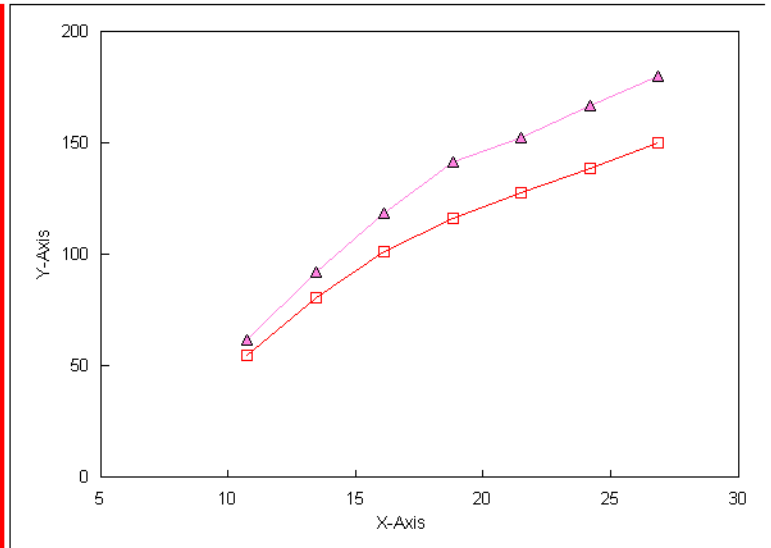


Lwl 10.873 metre Lpx 11.152 metre
 Bwl 2.200 metre Bpx 2.172 metre
 Twl 0.550 metre
 Dep 5.448 ton
 Lcg 29.100 Lcg/Lwl Lcg/Lpx 0.284 metre

Lwl/Bwl 4.942
 Bwl/Twl 4.000
 Dep/Lwl 120

Lcg 3.16 metre

Speed/Beam	V/B knots	C	EHP HP	Savitsky EHP
4	10.75	6.57899	61.63	54.73
5	13.43	5.01616	91.78	80.24
6	16.12	3.75077	118.58	101.09
7	18.81	2.81025	141.09	116.04
8	21.49	2.03412	152.44	127.56
9	24.18	1.55922	166.37	138.33
10	26.87	1.23055	180.11	149.97
11	29.55			
12	32.24			
13	34.93			
14	37.61			
15	40.30			
16	42.99			
17	45.67			
18	48.36			

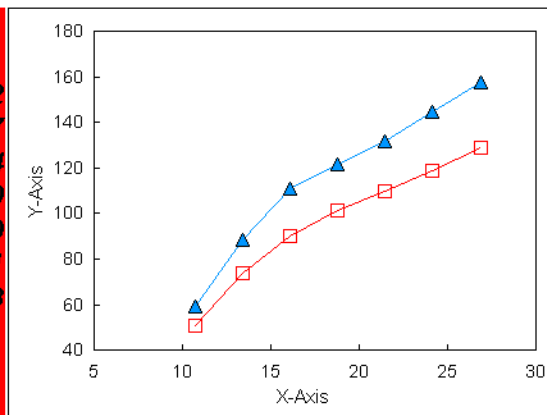


Lwl	9.416 metre	Lpx	9.658 metre
Bwl	2.200 metre	Bpx	2.172 metre
Twl	0.550 metre		
Dep	4.718 ton		
Lcg	30.900	Lcg/Lwl	0.301

Lwl/Bwl	4.280
Bwl/Twl	4.000
Dep/Lwl	160.00

Lcg 2.910 metre

Speed/Beam	V/B knots	C	EHP HP	Savitsky EHP
4	10.75	7.32452	59.42	51.02
5	13.43	5.57673	88.36	73.67
6	16.12	4.06147	111.20	90.14
7	18.81	2.79229	121.40	101.20
8	21.49	2.02753	131.59	109.99
9	24.18	1.56833	144.93	118.91
10	26.87	1.24445	157.75	129.08
11	29.55	0	0.00	
12	32.24	0	0.00	
13	34.93	0	0.00	



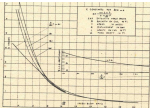


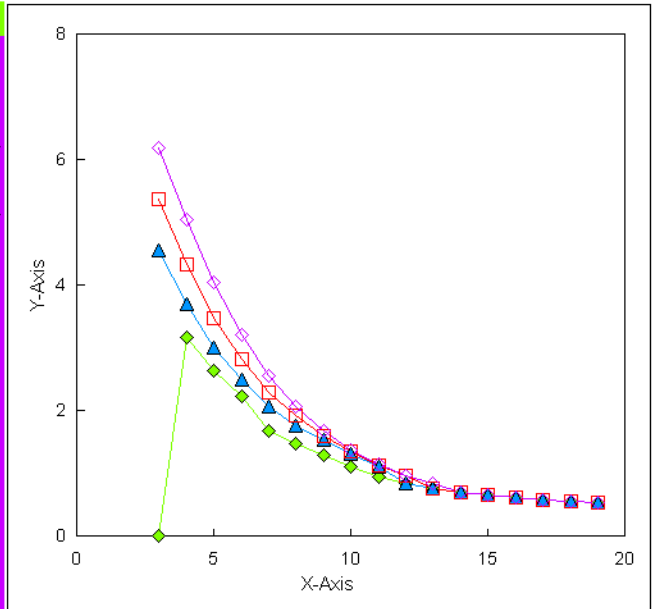
Fig. 10

B/D = 4

Lcg/Lwl	29.15	34.25	35.64	36.28
Dep/Lwl	40	80	120	160

Dep/Lwl	40	80	120	160
3	0.00000	4.55471	5.36458	6.18314
4	3.16481	3.68640	4.32131	5.03128
5	2.62265	3.00372	3.47373	4.03050
6	2.22265	2.48199	2.80680	3.20317
7	1.66458	2.06592	2.28783	2.54148
8	1.45838	1.75935	1.90528	2.05985
9	1.27639	1.52935	1.59688	1.67754
10	1.09444	1.30487	1.34162	1.36808
11	0.94281	1.10225	1.11415	1.13082
12	0.83969	0.83969	0.95241	0.95880
13	0.74869	0.74869	0.74869	0.83643
14	0.69412	0.69412	0.69412	0.69412
15	0.64782	0.64782	0.64782	0.64782
16	0.60983	0.60983	0.60983	0.60983
17	0.57602	0.57602	0.57602	0.57602
18	0.55489	0.55489	0.55489	0.55489
19	0.53803	0.53803	0.53803	0.53803

Speed-Beam



Çemberci Denizcilik

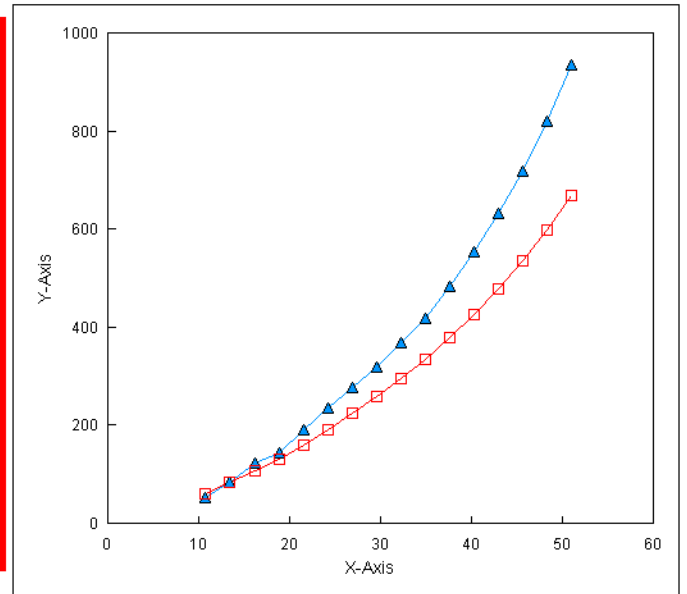
31-Mar-2007

Lwl 18.832 metre **Lpx** 19.315 metre
Bwl 2.200 metre **Bpx** 2.172 metre
Twl 0.550 metre
Dep 9.436 ton
Lcg 29.150 Lcg/Lwl **Lcg/Lpx** 0.284

Lwl/Bwl 8.560
Bwl/Twl 4.000
Dep/Lwl 40

Lcg 5.490 metre

Speed/Beam	V/B knots	C	EHP HP	Savitsky EHP
4	10.75	3.16481	51.35	60.57
5	13.43	2.62265	83.11	84.81
6	16.12	2.22265	121.71	107.40
7	18.81	1.66458	144.75	131.72
8	21.49	1.45838	189.30	159.29
9	24.18	1.27639	235.90	190.29
10	26.87	1.09444	277.46	223.72
11	29.55	0.94281	318.14	258.73
12	32.24	0.83969	367.85	295.79
13	34.93	0.74869	417.01	335.36
14	37.61	0.69412	482.87	378.19
15	40.30	0.64782	554.29	425.29
16	42.99	0.60983	633.26	477.26
17	45.67	0.57602	717.46	534.31
18	48.36	0.55489	820.42	598.31
19	51.05	0.53803	935.58	668.37

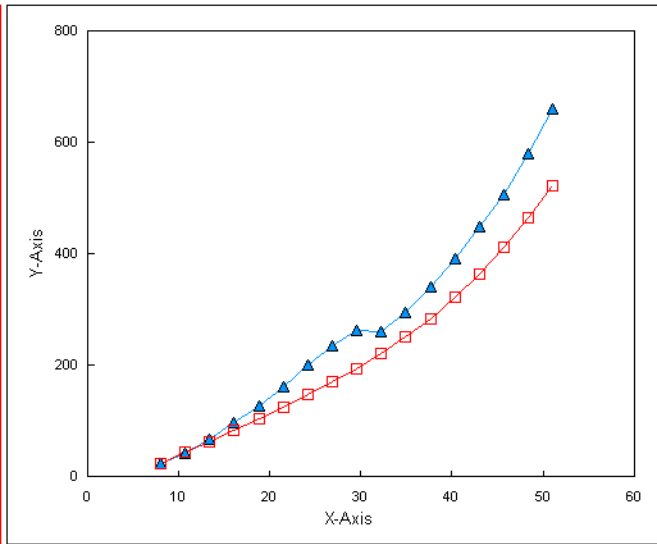


Lwl 13.317 metre Lpx 13.658 metre
 Bwl 2.200 metre Bpx 2.172 metre
 Twl 0.550 metre
 Dep 6.672 ton
 Lcg 34.250 Lcg/Lwl Lcg/Lpx 0.334

Lwl/Bwl 6.053
 Bwl/Twl 4.000
 Dep/Lwl 80

Lcg 4.561 metre

Speed/Beam	V/B knots	C	EHP HP	Savitsky EHP
3	8.06	4.55471	22.05	22.02
4	10.75	3.68640	42.29	43.87
5	13.43	3.00372	67.31	62.94
6	16.12	2.48199	96.11	82.13
7	18.81	2.06592	127.03	102.81
8	21.49	1.75935	161.48	124.65
9	24.18	1.52935	199.86	147.12
10	26.87	1.30487	233.92	170.22
11	29.55	1.10225	263.00	194.59
12	32.24	0.83969	260.11	221.34
13	34.93	0.74869	294.87	251.08
14	37.61	0.69412	341.44	284.38
15	40.30	0.64782	391.94	322.20
16	42.99	0.60983	447.78	364.52
17	45.67	0.57602	507.32	411.64
18	48.36	0.55489	580.13	464.42
19	51.05	0.53803	661.56	522.86

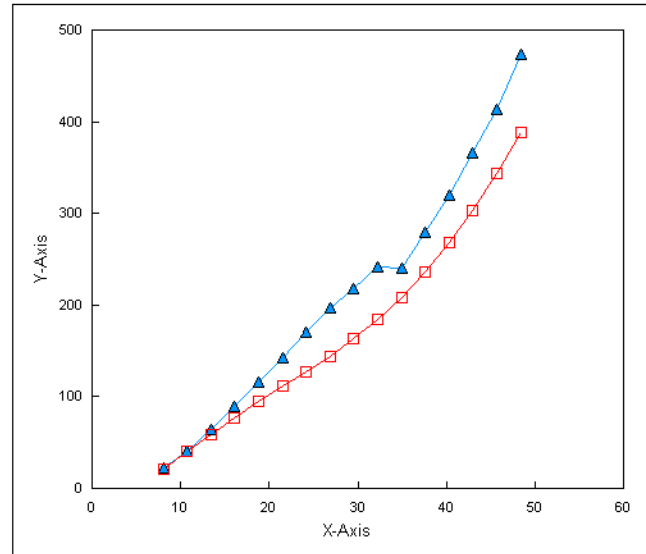


Lwl 10.873 metre Lpx 11.152 metre
 Bwl 2.200 metre Bpx 2.172 metre
 Twl 0.550 metre
 Dep 5.448 ton
 Lcg 35.640 Lcg/Lwl Lcg/Lpx 0.347

Lwl/Bwl 4.942
 Bwl/Twl 4.000
 Dep/Lwl 120

Lcg 3.875 metre

Speed/Beam	V/B knots	C	EHP HP	Savitsky EHP
3	8.06	5.36458	21.20	19.94
4	10.75	4.32131	40.48	39.63
5	13.43	3.47373	63.56	57.79
6	16.12	2.80680	88.74	76.07
7	18.81	2.28783	114.86	93.94
8	21.49	1.90528	142.78	110.69
9	24.18	1.59688	170.39	127.00
10	26.87	1.34162	196.37	144.00
11	29.55	1.11415	217.06	162.65
12	32.24	0.95241	240.89	183.89
13	34.93	0.74869	240.76	208.33
14	37.61	0.69412	278.78	236.02
15	40.30	0.64782	320.02	267.70
16	42.99	0.60983	365.61	303.56
17	45.67	0.57602	414.22	343.80
18	48.36	0.55489	473.67	388.83
19	51.05	0.53803	540.16	438.98

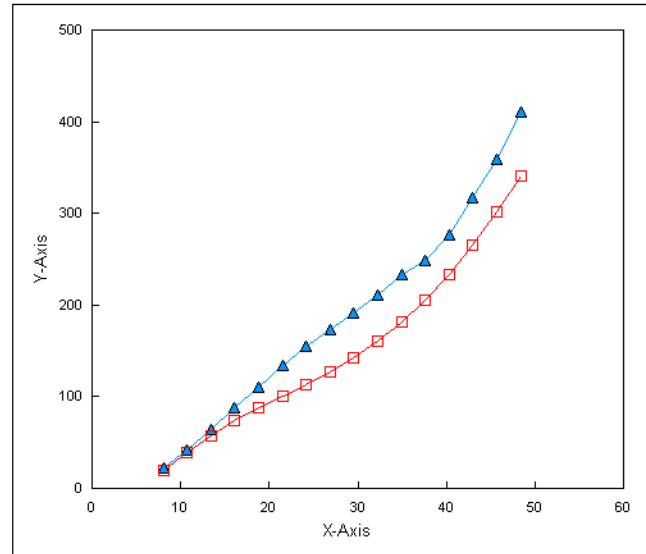


Lwl 9.416 metre Lpx 9.658 metre
 Bwl 2.200 metre Bpx 2.172 metre
 Twl 0.550 metre
 Dep 4.718 ton
 Lcg 36.280 Lcg/Lwl Lcg/Lpx 0.354

Lwl/Bwl 4.280
 Bwl/Twl 4.000
 Dep/Lwl 160

Lcg 3.416 metre

Speed/Beam	V/B knots	C	EHP HP	Savitsky EHP
3	8.06	6.18314	21.16	19.46
4	10.75	5.03128	40.82	38.49
5	13.43	4.03050	63.86	56.51
6	16.12	3.20317	87.70	73.37
7	18.81	2.54148	110.50	87.83
8	21.49	2.05985	133.69	100.45
9	24.18	1.67754	155.02	112.96
10	26.87	1.36808	173.42	126.58
11	29.55	1.13082	190.79	142.10
12	32.24	0.95880	210.02	160.35
13	34.93	0.83643	232.94	181.45
14	37.61	0.71412	248.39	205.72
15	40.30	0.64782	277.15	233.64
16	42.99	0.60983	316.63	265.38
17	45.67	0.57602	358.73	301.09
18	48.36	0.55489	410.21	341.17
19	51.05	0.53803	467.79	385.80



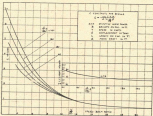


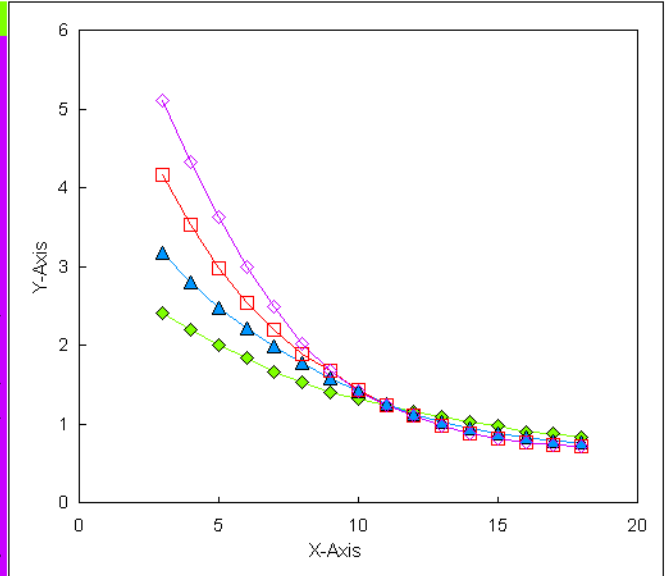
Fig. 10

B/D = 4

Lcg/Lwl	43.50	43.50	43.50	43.50
Dep/Lwl	40	80	120	160

Dep/Lwl	40	80	120	160
3	2.41829	3.18093	4.16350	5.10768
4	2.19525	2.81173	3.52804	4.33632
5	2.00233	2.48283	2.98490	3.63141
6	1.83693	2.21113	2.55039	2.99871
7	1.67153	1.99146	2.19733	2.49422
8	1.53374	1.77757	1.89862	2.02968
9	1.40966	1.58102	1.68136	1.67731
10	1.32701	1.41915	1.43011	1.41303
11	1.24426	1.25151	1.24685	1.24685
12	1.16160	1.13339	1.10423	1.10423
13	1.09957	1.03374	0.98205	0.98205
14	1.02373	0.95073	0.88697	0.88697
15	0.97550	0.87722	0.82588	0.82588
16	0.90656	0.82735	0.77161	0.77161
17	0.87903	0.79180	0.74443	0.74443
18	0.83770	0.76808	0.71726	0.71726

Speed/Beam



Çemberci Denizcilik

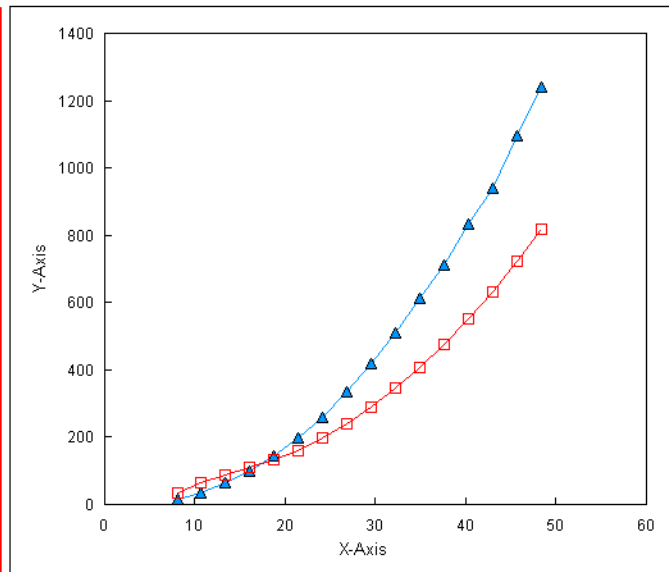
31-Mar-2007

Lwl 18.832 metre **Lpx** 19.315 metre
Bwl 2.200 metre **Bpx** 2.172 metre
Twl 0.550 metre
Dep 9.436 ton
Lcg 43.500 Lcg/Lwl **Lcg/Lpx** 0.424

Lwl/Bwl 8.560
Bwl/Twl 4.000
Dep/Lwl 40

Lcg 8.192 metre

Speed/Beam	V/B knots	C	EHP HP	Savitsky EHP
3	8.06	2.41829	16.55	34.26
4	10.75	2.19525	35.62	62.88
5	13.43	2.00233	63.45	87.04
6	16.12	1.83693	100.59	109.23
7	18.81	1.67153	145.35	132.95
8	21.49	1.53374	199.08	161.24
9	24.18	1.40966	260.53	196.23
10	26.87	1.32701	336.42	238.62
11	29.55	1.24426	419.86	288.11
12	32.24	1.16160	508.88	344.58
13	34.93	1.09957	612.44	407.31
14	37.61	1.02373	712.16	475.88
15	40.30	0.97550	834.66	550.91
16	42.99	0.90656	941.38	632.70
17	45.67	0.87903	1094.87	721.79
18	48.36	0.83770	1238.57	819.19
19	51.05	0.00000	0.00	

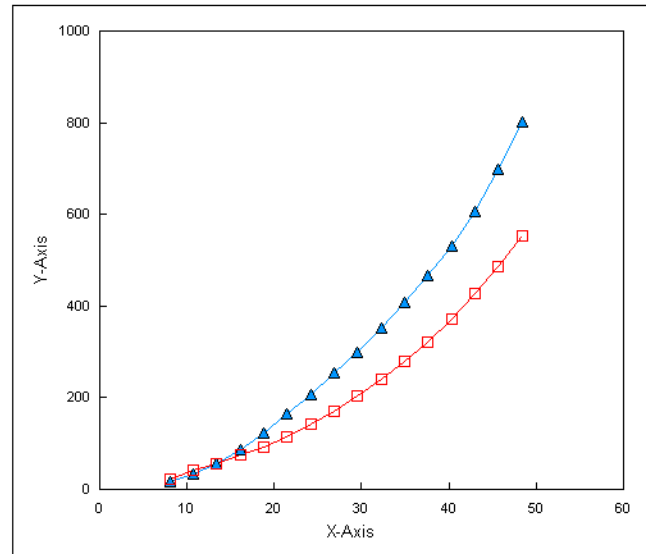


Lwl 13.317 metre Lpx 13.658 metre
 Bwl 2.200 metre Bpx 2.172 metre
 Twl 0.550 metre
 Dep 6.672 ton
 Lcg 43.500 Lcg/Lwl Lcg/Lpx 0.424

Lwl/Bwl 6.053
 Bwl/Twl 4.000
 Dep/Lwl 80

Lcg 5.793 metre

Speed/Beam	V/B knots	C	EHP HP	Savitsky EHP
3	8.06	3.18093	15.40	20.49
4	10.75	2.81173	32.26	39.42
5	13.43	2.48283	55.64	56.14
6	16.12	2.21113	85.62	73.02
7	18.81	1.99146	122.45	92.06
8	21.49	1.77757	163.15	114.37
9	24.18	1.58102	206.61	140.38
10	26.87	1.41915	254.41	169.76
11	29.55	1.25151	298.61	202.20
12	32.24	1.13339	351.09	238.14
13	34.93	1.03374	407.13	277.87
14	37.61	0.95073	467.67	321.85
15	40.30	0.87722	530.74	371.85
16	42.99	0.82735	607.50	425.81
17	45.67	0.79180	697.36	486.32
18	48.36	0.76808	803.00	553.56
19	51.05	0.00000	0.00	602.17

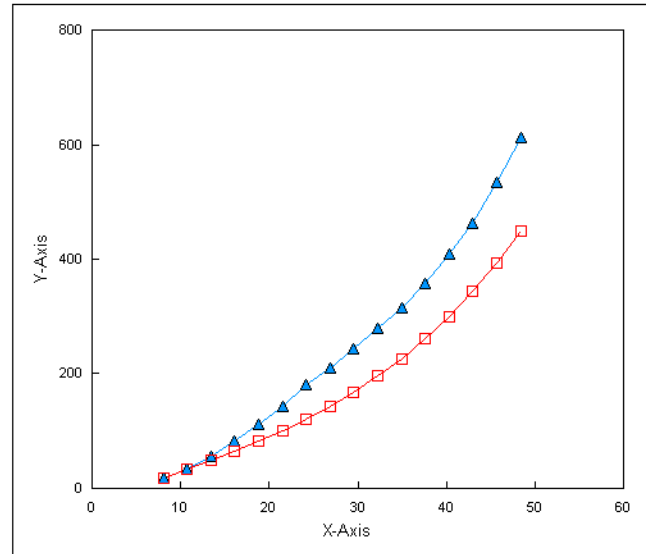


Lwl 10.873 metre Lpx 11.152 metre
 Bwl 2.200 metre Bpx 2.172 metre
 Twl 0.550 metre
 Dep 5.448 ton
 Lcg 43.500 Lcg/Lwl Lcg/Lpx 0.424

Lwl/Bwl 4.942
 Bwl/Twl 4.000
 Dep/Lwl 120

Lcg 4.730 metre

Speed/Beam	V/B knots	C	EHP HP	Savitsky EHP
3	8.06	4.16350	16.45	17.03
4	10.75	3.52804	33.05	33.19
5	13.43	2.98490	54.61	47.97
6	16.12	2.55039	80.63	63.38
7	18.81	2.19733	110.32	80.60
8	21.49	1.89862	142.28	99.71
9	24.18	1.68136	179.41	120.51
10	26.87	1.43011	209.32	142.96
11	29.55	1.24685	242.91	167.49
12	32.24	1.10423	279.29	194.93
13	34.93	0.98205	315.80	225.93
14	37.61	0.88697	356.24	260.66
15	40.30	0.82588	407.98	299.95
16	42.99	0.77161	462.60	344.10
17	45.67	0.74443	535.33	393.35
18	48.36	0.71726	612.27	448.23
19	51.05	0.53803	540.16	509.12

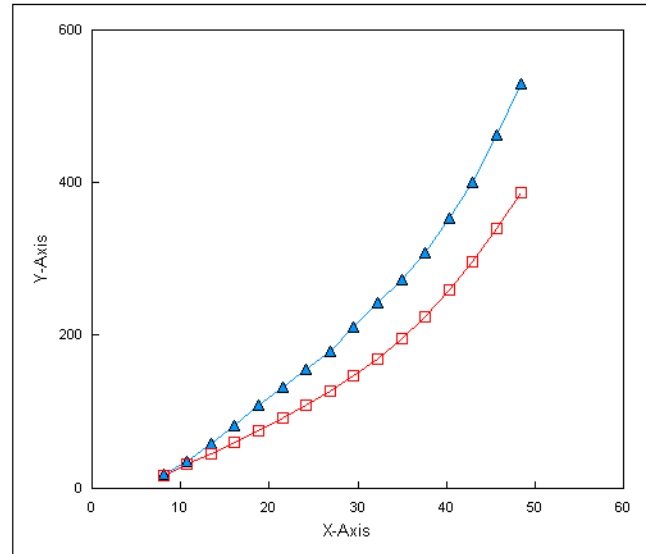


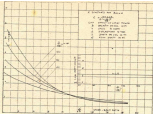
Lwl 9.416 metre Lpx 9.658 metre
 Bwl 2.200 metre Bpx 2.172 metre
 Twl 0.550 metre
 Dep 4.718 ton
 Lcg 43.500 Lcg/Lwl Lcg/Lpx 0.424

Lwl/Bwl 4.280
 Bwl/Twl 4.000
 Dep/Lwl 160

Lcg 4.096 metre

Speed/Beam	V/B knots	C	EHP HP	Savitsky EHP
3	8.06	5.10768	17.48	15.79
4	10.75	4.33632	35.18	30.83
5	13.43	3.63141	57.54	45.00
6	16.12	2.99871	82.10	59.84
7	18.81	2.49422	108.45	75.55
8	21.49	2.02968	131.73	91.62
9	24.18	1.67731	155.00	108.34
10	26.87	1.41303	179.11	126.33
11	29.55	1.24685	210.37	146.32
12	32.24	1.10423	241.87	169.27
13	34.93	0.98205	273.49	195.36
14	37.61	0.88697	308.51	225.03
15	40.30	0.82588	353.32	258.87
16	42.99	0.77161	400.63	297.04
17	45.67	0.74443	463.61	339.81
18	48.36	0.71726	530.24	387.69
19	51.05	0.53803	467.79	440.79



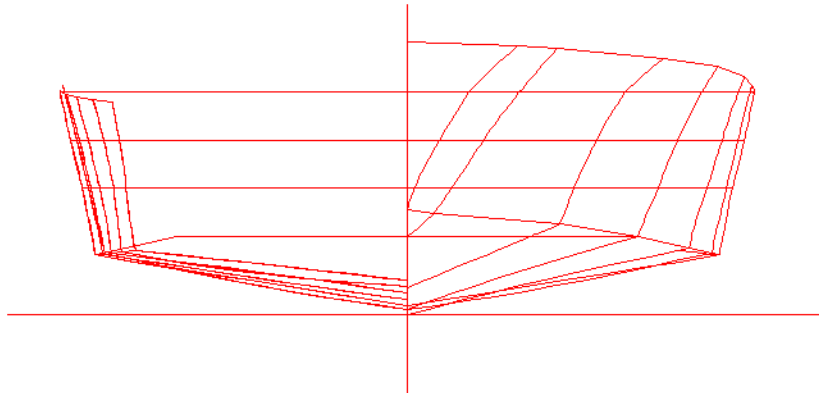
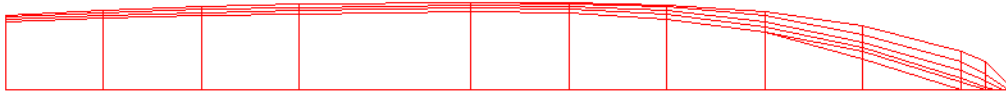
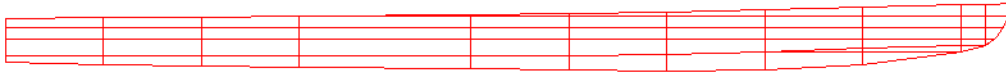


$$\mathbf{B/d = 8}$$

Dep/Lwl	Lwl	Dep-ton
40	13.317	3.336
80	9.416	2.359
120	7.688	1.926
160	6.658	1.668

Bwl	Twl	Bpx	Lpx	Deadrise	Lcg/Lpx		
2.20	0.275	2.172	14.008	9.35	17.87	26.25	43.50
2.20	0.275	2.172	9.657	9.35	22.15	30.00	43.50
2.20	0.275	2.172	7.885	9.35	25.00	32.86	43.50
2.20	0.275	2.172	6.829	9.35	27.21	34.14	43.50

Tahmini Kafalinin Teknesinin Replikası



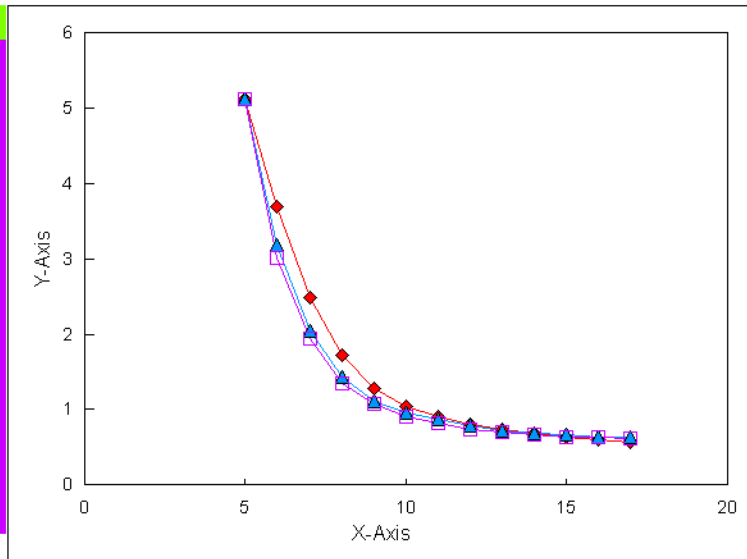
$B/T = 8.00$ $Dep/Lwl = 40$

B/D = 8

Lcg/Lwl	17.87	22.15	25	27.21
Dep/Lwl	40	80	120	160

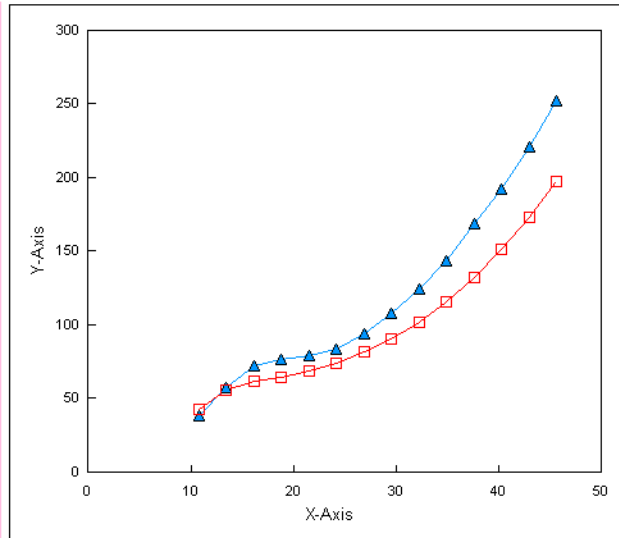
Dep/Lwl	40	80	120/160
4	6.66881		
5	5.11525	5.11525	5.11525
6	3.69225	3.18717	3.01007
7	2.49222	2.04578	1.95008
8	1.72728	1.43468	1.35387
9	1.27763	1.11110	1.07412
10	1.04739	0.96133	0.91217
11	0.90455	0.86292	0.82467
12	0.79988	0.78152	0.74277
13	0.72847	0.72051	0.70638
14	0.68565	0.67981	0.66390
15	0.63564	0.65942	0.63962
16	0.59993	0.62591	0.62743
17	0.57142	0.62887	0.60924

Speed/Beam



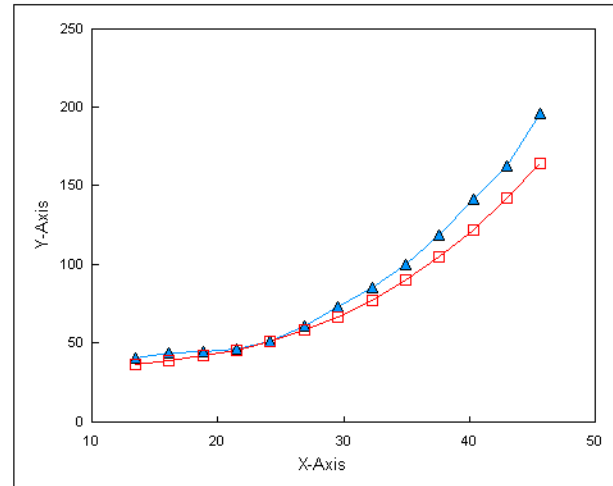
Lwl	13.317 metre	Lpx	13.658 metre
Bwl	2.200 metre	Bpx	2.172 metre
Twl	0.275 metre		
Dep	3.336 ton		
Lcg	17.870 Lcg/Lwl	Lcg/Lpx	0.174
Lwl/Bwl	6.053		
Bwl/Twl	8.000		
Dep/Lwl	40	Lcg	2.380 metre

Speed/Beam	V/B knots	C	EHP HP	Savitsky EHP
3	8.06	0.00000	0.00	0.00
4	10.75	6.66881	38.26	42.16
5	13.43	5.11525	57.31	55.19
6	16.12	3.69225	71.48	61.55
7	18.81	2.49222	76.62	63.77
8	21.49	1.72728	79.27	68.20
9	24.18	1.27763	83.48	73.83
10	26.87	1.04739	93.88	81.20
11	29.55	0.90455	107.91	90.44
12	32.24	0.79988	123.89	101.91
13	34.93	0.72847	143.45	115.68
14	37.61	0.68565	168.64	131.93
15	40.30	0.63564	192.29	150.89
16	42.99	0.59993	220.26	172.65
17	45.67	0.57142	251.63	197.20
18	48.36	0.00000	0.00	224.96
19	51.05	0.00000	0.00	255.94



Lwl	9.416 metre	Lpx	9.658 metre
Bwl	2.200 metre	Bpx	2.172 metre
Twl	0.275 metre		
Dep	2.359 ton		
Lcg	22.150 Lcg/Lwl	Lcg/Lpx	0.216
Lwl/Bwl	4.280		
Bwl/Twl	8.000		
Dep/Lwl	80	Lcg	2.086 metre

Speed/Beam	V/B knots	C	EHP HP	Savitsky EHP
3	8.06	0.00000	0.00	0.00
4	10.75	0.00000	0.00	0.00
5	13.43	5.11525	40.53	36.62
6	16.12	3.18717	43.63	38.74
7	18.81	2.04578	44.47	41.86
8	21.49	1.43468	46.56	45.86
9	24.18	1.11110	51.34	51.19
10	26.87	0.96133	60.93	58.12
11	29.55	0.86292	72.79	66.80
12	32.24	0.78152	85.59	77.47
13	34.93	0.72051	100.33	90.20
14	37.61	0.67981	118.23	105.10
15	40.30	0.65942	141.05	122.32
16	42.99	0.62591	162.49	142.02
17	45.67	0.62887	195.82	164.21

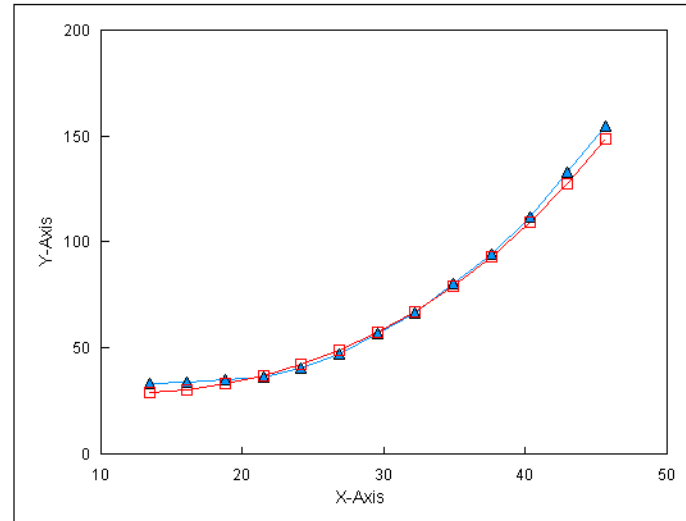


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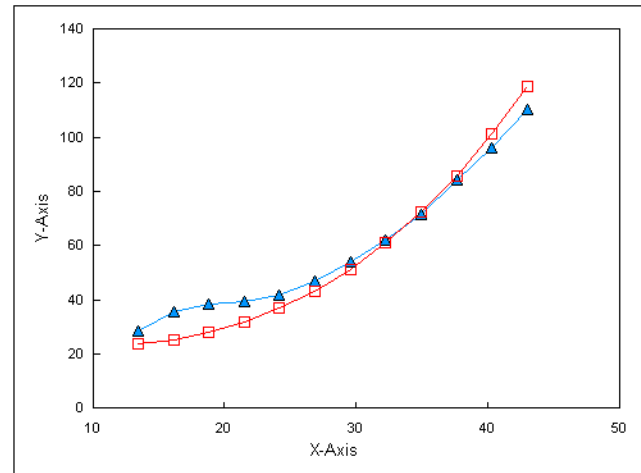
Lwl	7.688 metre	Lpx	7.886 metre
Bwl	2.200 metre	Bpx	2.172 metre
Twl	0.275 metre		
Dep	1.926 ton		
Lcg	25.000 Lcg/Lwl	Lcg/Lpx	0.244
Lwl/Bwl	3.495		
Bwl/Twl	8.000		
Dep/Lwl	120	Lcg	1.922 metre

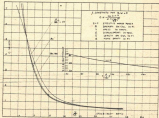
Speed/Beam	V/B knots	C	EHP HP	Savitsky EHP
3	8.06	0.00000	0.00	0.00
4	10.75	0.00000	0.00	0.00
5	13.43	5.11525	33.09	28.61
6	16.12	3.01007	33.65	30.26
7	18.81	1.95008	34.61	33.08
8	21.49	1.35387	35.87	36.88
9	24.18	1.07412	40.52	42.02
10	26.87	0.91217	47.20	48.68
11	29.55	0.82467	56.80	56.98
12	32.24	0.74277	66.42	67.09
13	34.93	0.70638	80.31	79.09
14	37.61	0.66390	94.27	93.08
15	40.30	0.63962	111.71	109.25
16	42.99	0.62743	132.99	127.69
17	45.67	0.60924	154.90	148.405



Lwl	6.658 metre	Lpx	6.829 metre
Bwl	2.200 metre	Bpx	2.172 metre
Twl	0.275 metre		
Dep	1.668 ton		
Lcg	27.210 Lcg/Lwl	Lcg/Lpx	0.265
Lwl/Bwl	3.026		
Bwl/Twl	8.000		
Dep/Lwl	160	Lcg	1.812 metre

Speed/Beam	V/B knots	C	EHP HP	Savitsky EHP
3	8.06	0.00000	0.00	0.00
4	10.75	0.00000	0.00	0.00
5	13.43	5.11525	28.66	23.96
6	16.12	3.69225	35.74	25.44
7	18.81	2.49222	38.31	28.14
8	21.49	1.72728	39.63	31.83
9	24.18	1.27763	41.74	36.83
10	26.87	1.04739	46.94	43.29
11	29.55	0.90455	53.96	51.29
12	32.24	0.79988	61.94	60.98
13	34.93	0.72847	71.73	72.48
14	37.61	0.68565	84.32	85.84
15	40.30	0.63564	96.14	101.27
16	42.99	0.59993	110.13	118.81
17	45.67	0.57142	125.82	138.52



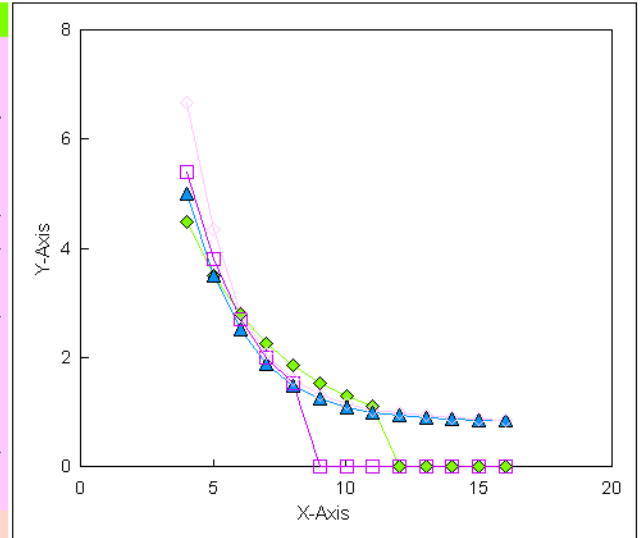


B/D = 8

Lcg/Lwl	26.25	30.00	32.86	34.14
Dep/Lwl	40	80	120	160

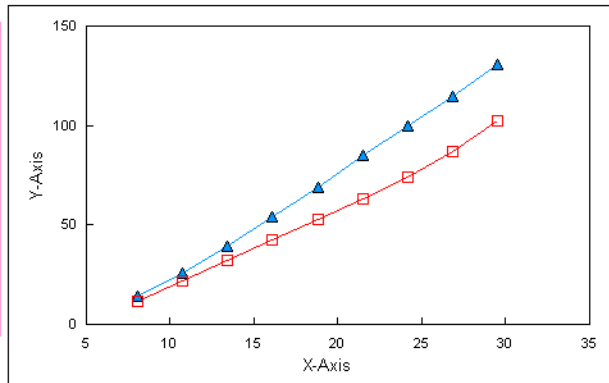
Dep/Lwl	40	80	120	160
3	5.78392	7.00413	0	0
4	4.47607	5.01042	5.39549	6.67588
5	3.49509	3.50654	3.81173	4.33006
6	2.78710	2.51722	2.68690	2.81379
7	2.24019	1.88232	1.98881	2.06104
8	1.84780	1.46660	1.52023	1.58815
9	1.53091	1.23123	0.00000	1.30475
10	1.27944	1.08092		1.13679
11	1.09926	0.98580		1.03185
12	0.00000	0.93070		0.97590
13		0.88567		0.92338
14		0.85563		0.88490
15		0.84056		0.86037
16		0.83411		0.84642

Speed/Beam



Lwl	13.317 metre	Lpx	13.658 metre
Bwl	2.200 metre	Bpx	2.172 metre
Twl	0.275 metre		
Dep	3.336 ton		
Lcg	26.250 Lcg/Lwl	Lcg/Lpx	0.256
Lwl/Bwl	6.053		
Bwl/Twl	8.000		
Dep/Lwl	40	Lcg	3.496 metre

Speed/Beam	V/B knots	C	EHP HP	Savitsky EHP
3	8.06	5.78392	14.00	11.52
4	10.75	4.47607	25.68	21.89
5	13.43	3.49509	39.16	32.10
6	16.12	2.78710	53.96	42.43
7	18.81	2.24019	68.87	52.53
8	21.49	1.84780	84.80	62.74
9	24.18	1.53091	100.03	74.02
10	26.87	1.27944	114.68	87.12
11	29.55	1.09926	131.14	102.424

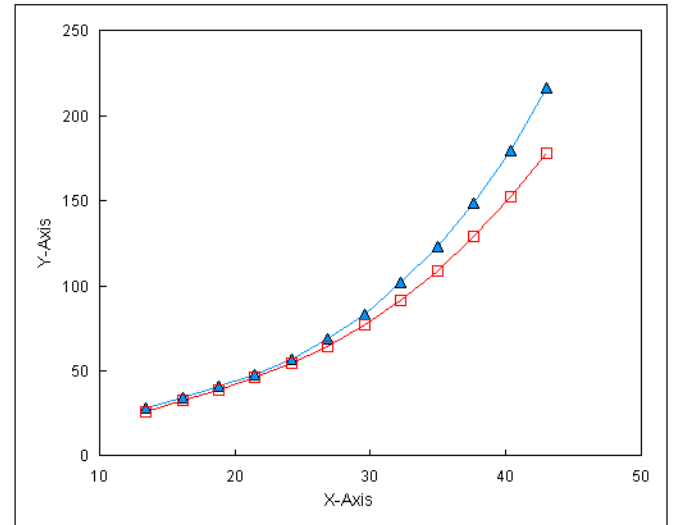


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Lwl	9.416 metre	Lpx	9.658 metre
Bwl	2.200 metre	Bpx	2.172 metre
Twl	0.275 metre		
Dep	2.359 ton		
Lcg	30.000 Lcg/Lwl	Lcg/Lpx	0.292
Lwl/Bwl	4.280		
Bwl/Twl	8.000		
Dep/Lwl	80	Lcg	2.825 metre

Speed/Beam	V/B knots	C	EHP HP	Savitsky EHP
3	8.06	7.00413	11.99	9.72
4	10.75	5.01042	20.32	18.03
5	13.43	3.50654	27.78	25.86
6	16.12	2.51722	34.46	32.59
7	18.81	1.88232	40.92	38.89
8	21.49	1.46660	47.59	45.87
9	24.18	1.23123	56.89	54.26
10	26.87	1.08092	68.51	64.48
11	29.55	0.98580	83.16	76.80
12	32.24	0.93070	101.93	91.55
13	34.93	0.88567	123.33	108.90
14	37.61	0.85563	148.81	128.95
15	40.30	0.84056	179.80	152.01
16	42.99	0.83411	216.54	178.24

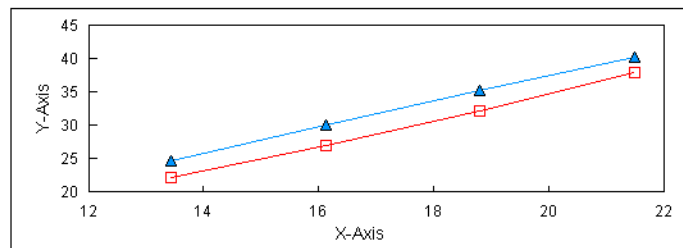


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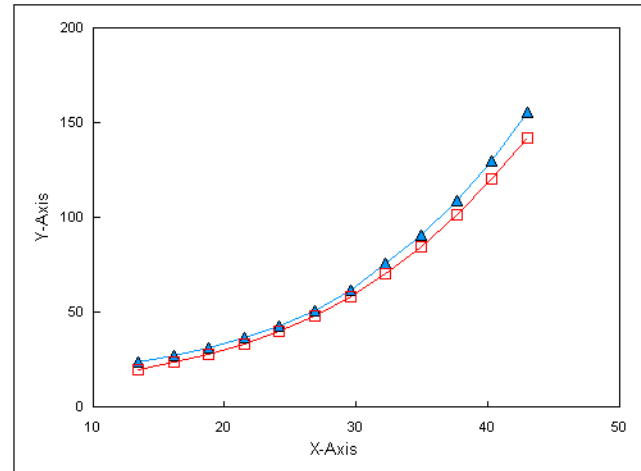
Lwl	7.688 metre	Lpx	7.886 metre
Bwl	2.200 metre	Bpx	2.172 metre
Twl	0.275 metre		
Dep	1.926 ton		
Lcg	32.860 Lcg/Lwl	Lcg/Lpx	0.320
Lwl/Bwl	3.495		
Bwl/Twl	8.000		
Dep/Lwl	120	Lcg	2.526 metre

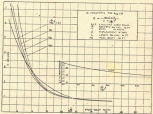
Speed/Beam	V/B knots	C	EHP HP	Savitsky EHP
3	8.06	0.00000	0.00	0.00
4	10.75	5.39549	17.87	15.98
5	13.43	3.81173	24.66	22.11
6	16.12	2.68690	30.03	27.08
7	18.81	1.98881	35.30	32.12
8	21.49	1.52023	40.28	38.06



Lwl	6.658 metre	Lpx	6.829 metre
Bwl	2.200 metre	Bpx	2.172 metre
Twl	0.275 metre		
Dep	1.668 ton		
Lcg	34.140 Lcg/Lwl	Lcg/Lpx	0.333
Lwl/Bwl	3.026		
Bwl/Twl	8.000		
Dep/Lwl	160	Lcg	2.273 metre

Speed/Beam	V/B knots	C	EHP HP	Savitsky EHP
3	8.06	0.00000	0.00	0.00
4	10.75	6.67588	19.15	15.11
5	13.43	4.33006	24.26	19.90
6	16.12	2.81379	27.24	23.74
7	18.81	2.06104	31.68	27.95
8	21.49	1.58815	36.44	33.16
9	24.18	1.30475	42.63	39.82
10	26.87	1.13679	50.95	48.15
11	29.55	1.03185	61.55	58.28
12	32.24	0.97590	75.58	70.45
13	34.93	0.92338	90.92	84.77
14	37.61	0.88490	108.82	101.31
15	40.30	0.86037	130.13	120.36
16	42.99	0.84642	155.38	141.97



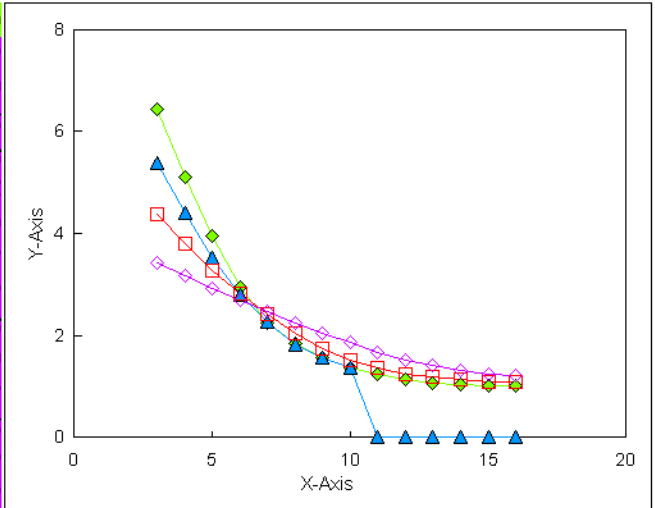


B/D = 8

Lcg/Lwl	43.50	43.50	43.50	43.50
Dep/Lwl	40	80	120	160

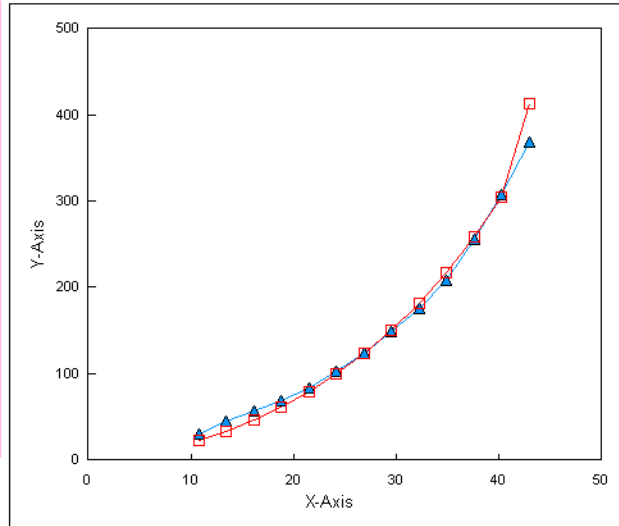
Dep/Lwl	40	80	120	160
3	6.43414	5.39130	4.37331	3.41222
4	5.10258	4.39532	3.78809	3.16880
5	3.93871	3.51197	3.25813	2.92565
6	2.93962	2.80444	2.82070	2.69666
7	2.23338	2.25420	2.40546	2.46054
8	1.82983	1.81631	2.04960	2.24589
9	1.56385	1.55709	1.73082	2.04558
10	1.37130	1.37358	1.51580	1.85952
11	1.24288		1.35267	1.67346
12	1.13281		1.24141	1.52320
13	1.05946		1.17474	1.41588
14	1.04074		1.13025	1.30855
15	1.01708		1.09737	1.23703
16	1.00128		1.07490	1.20122

Speed-Beam



Lwl	13.317 metre	Lpx	13.658 metre
Bwl	2.200 metre	Bpx	2.172 metre
Twl	0.275 metre		
Dep	3.336 ton		
Lcg	43.500 Lcg/Lwl	Lcg/Lpx	0.424
Lwl/Bwl	6.053		
Bwl/Twl	8.000		
Dep/Lwl	40	Lcg	5.793 metre

Speed/Beam	V/B knots	C	EHP HP	Savitsky EHP
3	8.06	6.43414	15.57	11.50
4	10.75	5.10258	29.27	22.16
5	13.43	3.93871	44.13	33.10
6	16.12	2.93962	56.91	45.49
7	18.81	2.23338	68.66	60.36
8	21.49	1.82983	83.97	78.14
9	24.18	1.56385	102.19	99.04
10	26.87	1.37130	122.91	123.04
11	29.55	1.24288	148.28	150.34
12	32.24	1.13281	175.46	181.64
13	34.93	1.05946	208.63	217.37
14	37.61	1.04074	255.97	257.88
15	40.30	1.01708	307.68	303.89
16	42.99	1.00128	367.60	413.42

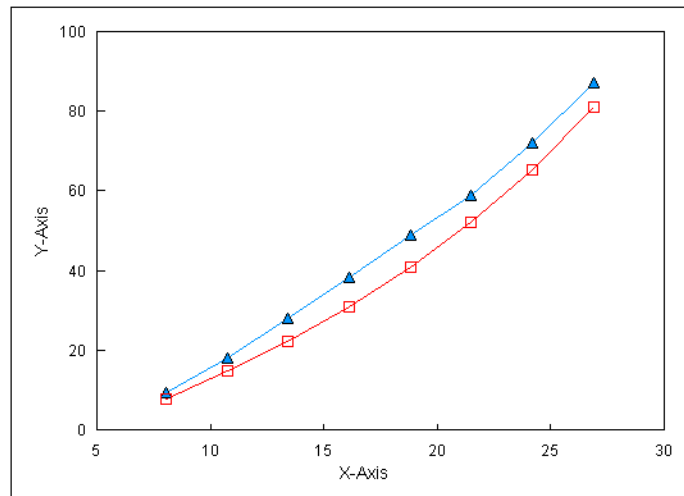


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Lwl	9.416 metre	Lpx	9.658 metre
Bwl	2.200 metre	Bpx	2.172 metre
Twl	0.275 metre		
Dep	2.359 ton		
Lcg	43.500 Lcg/Lwl	Lcg/Lpx	0.424
Lwl/Bwl	4.280		
Bwl/Twl	8.000		
Dep/Lwl	80	Lcg	4.096 metre

Speed/Beam	V/B knots	C	EHP HP	Savitsky EHP
3	8.06	5.39130	9.23	7.64
4	10.75	4.39532	17.83	14.70
5	13.43	3.51197	27.82	22.26
6	16.12	2.80444	38.39	30.84
7	18.81	2.25420	49.00	40.69
8	21.49	1.81631	58.94	52.01
9	24.18	1.55709	71.94	65.26
10	26.87	1.37358	87.06	80.89
11	29.55	0.00000	0.00	0.00
12	32.24	0.00000	0.00	0.00
13	34.93	0.00000	0.00	0.00
14	37.61	0.00000	0.00	0.00
15	40.30	0.00000	0.00	0.00
16	42.99	0.00000	0.00	0.00

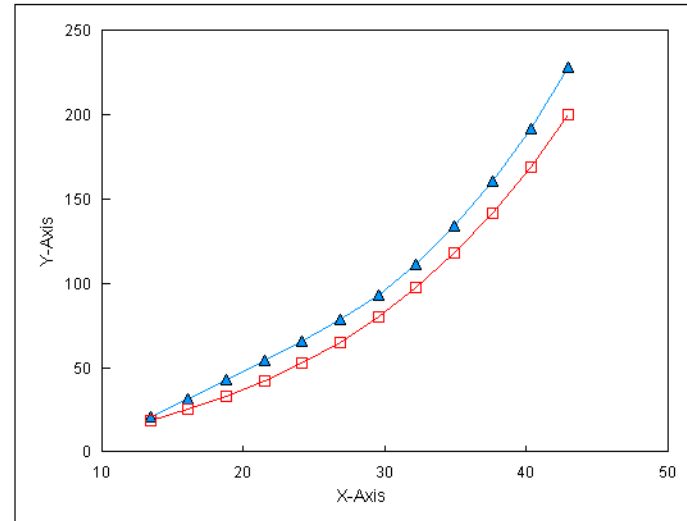


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Lwl	7.688 metre	Lpx	7.886 metre
Bwl	2.200 metre	Bpx	2.172 metre
Twl	0.275 metre		
Dep	1.926 ton		
Lcg	43.500 Lcg/Lwl	Lcg/Lpx	0.424
Lwl/Bwl	3.495		
Bwl/Twl	8.000		
Dep/Lwl	120	Lcg	3.344 metre

Speed/Beam	V/B knots	C	EHP HP	Savitsky EHP
3	8.06	4.37331	6.11	6.66
4	10.75	3.78809	12.55	12.58
5	13.43	3.25813	21.08	18.89
6	16.12	2.82070	31.53	25.72
7	18.81	2.40546	42.70	33.26
8	21.49	2.04960	54.31	41.92
9	24.18	1.73082	65.30	52.31
10	26.87	1.51580	78.44	64.83
11	29.55	1.35267	93.17	79.73
12	32.24	1.24141	111.01	97.42
13	34.93	1.17474	133.56	118.03
14	37.61	1.13025	160.50	141.75
15	40.30	1.09737	191.66	168.95
16	42.99	1.07490	227.84	199.71



Lwl	6.658 metre	Lpx	6.829 metre
Bwl	2.200 metre	Bpx	2.172 metre
Twl	0.275 metre		
Dep	1.668 ton		
Lcg	43.500 Lcg/Lwl	Lcg/Lpx	0.424
Lwl/Bwl	3.026		
Bwl/Twl	8.000		
Dep/Lwl	160	Lcg	2.896 metre

Speed/Beam	V/B knots	C	EHP HP	Savitsky EHP
3	8.06	3.41222	4.13	6.31
4	10.75	3.16880	9.09	11.72
5	13.43	2.92565	16.39	17.26
6	16.12	2.69666	26.10	22.83
7	18.81	2.46054	37.82	28.93
8	21.49	2.24589	51.53	36.11
9	24.18	2.04558	66.83	44.98
10	26.87	1.85952	83.34	55.79
11	29.55	1.67346	99.82	68.75
12	32.24	1.52320	117.96	84.17
13	34.93	1.41588	139.41	102.22
14	37.61	1.30855	160.92	122.99
15	40.30	1.23703	187.11	146.79
16	42.99	1.20122	220.51	173.79

