

Cable + surface floats

1959

LR

LRR

STATION	L	R	L ²	R ²	L ² +R ²	(L)(R)	α_1	α_2	$\bar{\alpha}$	Corr
Z-5	385	379	148225	143641	291866	145915	3°30'50"	3°07'39"	3°19'14"	0.99833
Tow 2	385	391	148225	152881	301106	150535	3°48'50"	4°06'50"	3°58'50"	0.99760
Tow 7 (1)	440	415	193600	172225	365825	182600	4°07'50"	4°05'00"	4°06'25"	0.99744
(2)	438	427	191844	182329	374173	187026	3°46'20"	3°45'40"	3°46'00"	0.99784
(3)	439	428	192721	183184	375905	187892	3°42'00"	3°39'40"	3°41'20"	0.99793
Tow 8 (1)	383	384	146689	147456	294145	147072	4°18'20"	4°33'00"	4°22'00"	0.99710
(2)	373	371	139129	137641	276770	138383	4°18'00"	4°18'30"	4°18'15"	0.99715
Tow 21 (1)	354	356	125316	126736	252052	126024	3°19'10"	5°19'00"	3°19'05"	0.99833
(2)	356	356	126736	126736	253472	126736	2°54'30"	3°01'20"	2°58'05"	0.99866
(3)	365	355	133225	126025	259250	129575	3°59'20"	3°56'20"	3°58'00"	0.99762
Tow 22 (1)	380	386	144400	148996	293396	146680	3°45'20"	3°40'20"	3°43'00"	0.99790
(2)	387	383	149769	146689	296458	148221	4°14'30"	4°16'50"	4°15'30"	0.99724
(3)	385	385	148225	148225	296450	148225	4°16'40"	4°13'20"	4°15'00"	0.99720
Tow 23 (1)	375	366	140625	133956	274581	137250	4°16'20"	4°06'40"	4°11'30"	0.99732
(2)	372	361	138384	130321	268705	134292	3°55'20"	4°07'40"	4°01'30"	0.99753
(3)	378	370	142884	136900	279784	139860	3°54'10"	3°47'40"	3°41'25"	0.99793
Tow 29 (1)	354	350	125316	122500	247816	123900	3°53'40"	3°53'50"	3°54'15"	0.99768
(2)	354	350	125316	122500	247816	123900	3°58'10"	3°56'30"	3°57'20"	0.99762
(3)	356	354	126736	125316	252052	126024	4°04'20"	3°58'40"	4°01'30"	0.99758
Tow 31 (1)	368	359	135424	128881	264305	132112	4°02'30"	4°01'30"	4°02'00"	0.99752
(2)	358	359	128164	128881	257045	128522	3°50'00"	3°49'20"	3°49'40"	0.99777
(3)	362	360	131044	129600	260644	130320	3°48'40"	3°58'30"	3°52'35"	0.99771
Tow 32 (1)	370	366	136900	133956	270856	135420	4°25'00"	4°31'11"	4°28'06"	0.99694
(2)	367	369	134689	136161	270850	135423	4°09'40"	4°14'00"	4°11'50"	0.99731
(3)	368	366	135424	133956	269380	134688	3°53'40"	4°02'30"	3°58'05"	0.99760
Tow 33 (1)	355	354	126025	125316	251341	125670	3°30'50"	3°15'40"	3°23'15"	0.99822
(2)	354	354	125316	125316	250632	125316	3°25'20"	3°26'40"	3°26'00"	0.99822
(3)	354	352	125316	123904	249220	124608	3°32'00"	3°27'40"	3°30'50"	0.99812
Tow 40 (1)	314	318	98596	101124	199720	99852	4°29'40"	4°20'00"	4°24'50"	0.99970
(2)	313	318	97969	101124	199093	99534	4°37'00"	4°36'50"	4°36'55"	0.99670
(3)	319	316	101761	99856	201617	100804	4°35'30"	4°35'30"	4°35'30"	0.99679
Tow 42 (1)	314	313	98596	97969	196565	98282	3°54'40"	3°09'30"	3°32'05"	0.99810
(2)	309	310	95481	96100	191581	95790	3°57'10"	3°56'30"	3°56'50"	0.99776
Tow 44 (1)	322	319	103684	101761	205445	102718	3°52'20"	3°45'40"	3°49'00"	0.99777
(2)	319	318	101761	101124	202885	101442	3°56'10"	3°55'20"	3°55'65"	0.99776
(3)	310	304	96100	92416	188516	94240	4°24'00"	4°30'00"	4°27'00"	0.99699
Tow 49 (1)	356	350	126736	122500	249236	124600	3°49'30"	3°49'30"	3°49'30"	0.99777
(2)	354	353	125316	124609	249925	124962	3°31'20"	3°31'50"	3°31'35"	0.99811
(3)	364	356	132496	126736	259232	129584	3°20'30"	3°25'30"	3°23'00"	0.99822

Door Width - surface Floors

Tordenskjold - 1959

$$a^2 = L^2 + R^2 - 2LR \cos \alpha$$

(Law of Cosines)

a = door spread
 L = dist. to left ball
 R = " " Right ball
 α = \angle between balls

	$L^2 + R^2$	$2LR$	$(2LR)(\cos \alpha)$	$(L^2 + R^2) - 2LR \cos \alpha$	$\sqrt{\text{Result}}$	Yds	feet
2	211866	297850	211843	509	23		
7 (1)	301106	301070	300347	759	28	28	84
7 (2)	365825	365200	364261	564	40		
7 (3)	374173	374052	373244	929	30	33	99
8 (1)	375705	375784	375806	819	30		
8 (2)	294145	294144	293291	854	20	27	81
8 (3)	276770	276766	275984	784	28		
21 (1)	252052	252049	251627	425	21		
21 (2)	253472	253472	253132	340	18	27	66
21 (3)	259252	259150	258528	722	27		
22 (1)	293396	293360	292744	652	26		
22 (2)	296458	296442	295624	834	29	28	84
22 (3)	296450	296450	295635	815	29		
23 (1)	274581	274500	273767	814	29		
23 (2)	268705	268584	267921	784	28	27	81
23 (3)	279784	279720	279141	643	25		
29 (1)	247816	247800	247225	591	24		
29 (2)	247816	247800	247210	606	25	25	75
29 (3)	252052	252048	251425	627	25		
31 (1)	264205	264224	263569	636	27		
31 (2)	257045	257044	256471	574	24	24	72
31 (3)	260644	260640	260043	401	20		
32 (1)	270856	270840	270017	839	29		
32 (2)	270850	270846	270117	733	27	32	96
32 (3)	269330	269326	267732	1598	40		
33 (1)	251331	251340	250900	431	21		
33 (2)	250632	250632	250183	449	21	21	63
33 (3)	249220	249216	248750	470	22		
40 (1)	199720	199704	199111	609	25		
40 (2)	199093	199068	198423	670	26	26	78
40 (3)	201617	201608	200961	656	26		
42 (1)	196565	196564	196191	374	19		
42 (2)	191581	190580	190126	455	38	29	87
44 (1)	205445	205436	204950	495	22		
44 (2)	202885	202874	202405	480	22	23	69
44 (3)	188576	188440	187913	663	25		
49 (1)	249236	249200	248644	592	24		
49 (2)	248925	249924	249462	463	22	23	69
49 (3)	258232	259168	258717	515	23		

79'

		at Stations	at 6' from Station	Diff	WIRE out	Door Spread		MEAN Door Spread
Tow	2	14.03	14.42	0.34	135	46	60	60
Tow	7	(1) 14.04	14.33	0.29	145	42	56	56
		(2)						
		(3)						
	8	(1) 14.08	14.50	0.42	118	50	64	62
		(3) 14.04	14.42	0.38	118	45	59	
	21	(1) 14.04	14.46	0.42	106	45	59	53
		(2) 14.04	14.29	0.25	106	27	41	
		(3) 14.04	14.46	0.42	106	45	59	
	22	(1) 14.04	14.42	0.38	125	48	62	65
		(2) 14.04	14.46	0.42	125	53	67	
		(3) 14.04	14.46	0.42	125	53	67	
	23	(1) 14.04	14.55	0.46	110	51	65	59
		(2) 14.08	14.47	0.34	110	37	57	
		(3) 14.04	14.46	0.42	110	46	60	
	29	(1) 14.04	14.46	0.42	104	44	58	59
		(2) 14.08	14.54	0.46	104	48	62	
		(3) 14.08	14.60	0.42	104	44	58	
	31	(1) 14.04	14.42	0.38	111	42	56	54
		(2) 14.04	14.37	0.33	111	37	57	
		(7) 14.04	14.42	0.38	111	42	56	
	32	(1) 14.04	14.50	0.46	111	57	65	59
		(2) 14.08	14.46	0.38	111	42	56	
		(3) 14.08	14.46	0.38	111	42	56	
	33	(1) 14.08	14.46	0.38	108	41	55	58
		(2) 14.08	14.50	0.42	108	45	59	
		(3) 14.08	14.50	0.42	108	45	59	
	40	(1) 14.12	14.62	0.40	86	34	48	48
		(2) 14.12	14.62	0.40	86	34	48	
		(3) 14.12	14.62	0.40	86	34	48	
	42	(1) 14.12	14.62	0.40	80	32	46	57
		(2) 14.08	14.62	0.54	80	43	57	
	44	(1) 14.08	14.58	0.50	82	41	55	57
		(2) 14.08	14.67	0.59	82	48	62	
		(3) 14.08	14.58	0.50	82	41	55	
	49	(1) 14.04	14.54	0.50	106	53	65	55
		(2) 14.08	14.42	0.34	106	36	50	
		(3) 14.00	14.33	0.33	106	35	49	

57'