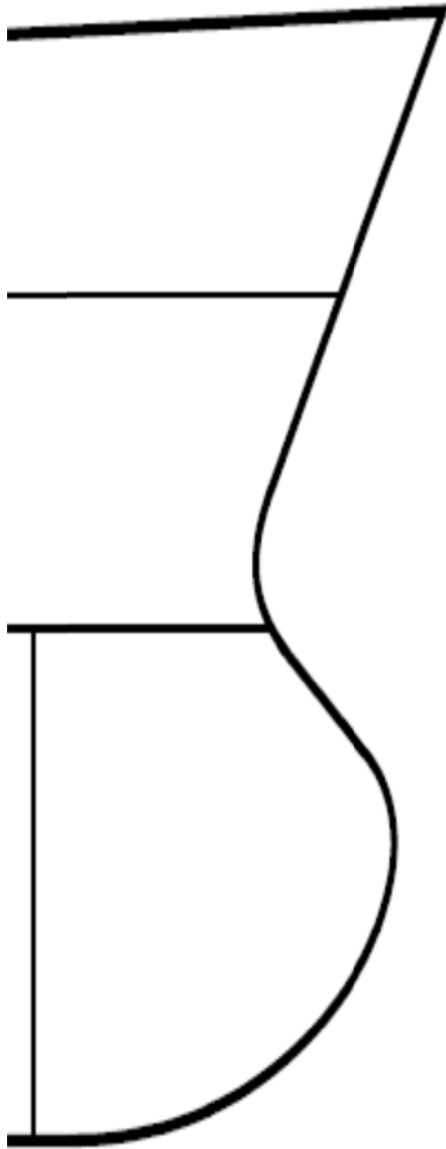


Special Service Craft



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1 Details

1.1 Basic Data

Property	Units	Entered	Derived
Length Perpendiculars	m	29.000	
Breadth	m	8.000	
Depth	m	6.100	
Rule Length	m	29.814	
Load Line Length	m	31.000	
Length Overall	m	34.986	
Support Girth	m	7.300	
Craft with Chines		No	
Maximum Speed	knots	12.000	
Max Displacement Mass	tonnes	1116.636	
Max Displacement Volume	m3	9.999	1089.401
Water Density	kg/m3	1025.000	
Breadth of Hull between Chines	m	8.000	
Number of Hulls		1	
Waterline Length	m	31.190	
Block Coefficient		0.679	

1.2 Classification

Property	Entered
Craft Type	Mono
Service Area	G6
Service Type	Workboat
HSC Compliant	No
LDC Compliant	No

1.3 Craft

Property	Entered
LR Number	
Project Title	Arrastrero 29m
Builder	
Yard Number	
Hull Material	Steel
Superstructure Material	Steel

2 Loadings

2.1 Loading Condition (mono-hull)

Property	Units	Entered	Derived
Running Trim Angle	deg	0.000	
Max Breadth of Hull at LCG		8.000	
Draught	m	3.700	
Waterline Length	m	31.190	
Long Centre Gravity	m	17.000	
Significant Wave Height	m	6.000	4.000
Displacement Mass	tonnes	1116.636	
Allowable Speed	knots	12.000	
Froude Number		0.000	0.353
Maximum Wave Height	m	0.000	10.002
Taylor's Quotient		0.000	2.149
Deadrise Angle	deg	14.000	
Surviving Wave Height	m	0.000	7.740
Displacement Volume	m3	0.000	1089.401
Vertical Acceleration at LCG	g	0.000	1.520
Volumetric Speed Number		0.000	23.064
Density	kg/m3	1025.000	
In Contact With Water		Yes	
Operational Height	m	n/a	
Girth Distance	m	5.600	
Waterline Offset from AP		14.000	
Hull Type		Partially Submerged	
Relative Vertical Speed	knots	0.000	10.595
Operating Mode		Displacement	

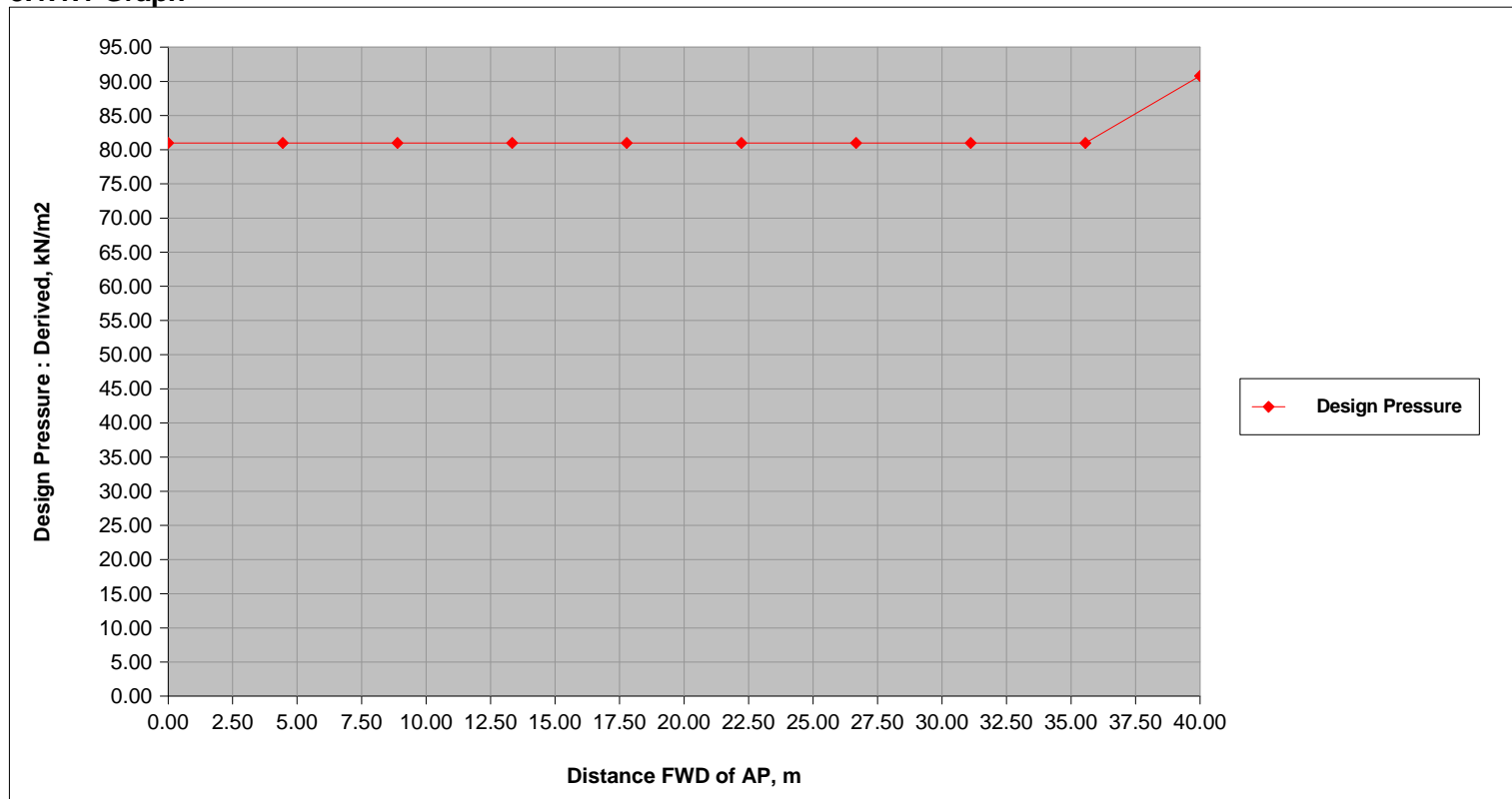
3 Structure

3.1 Bottom Shell

3.1.1 Bottom Shell Plate (Fe)

Property	Units	Entered	Derived	Required
Steel		Steel Material		
Curvature	mm	0.000		
Panel Breadth	mm	0.000	500.000	
Panel Length	mm	3150.000		
Panel Aspect Ratio		0.000	6.300	
Stiffener Spacing	mm	500.000		
Thickness	mm	9.000		7.592
Slamming Zone		No		
Below Tangential Point		No		
Height above Base	m	0.000		
Distance FWD of AP	m	14.000		
Design Pressure	kN/m2	80.980	80.980	

3.1.1.1 Graph



3.1.1.1.2 Table: Graph

Distance FWD of AP	Design Pressure
0.000	80.980
4.444	80.980
8.889	80.980
13.333	80.980
17.778	80.980
22.222	80.980
26.667	80.980
31.111	80.980
35.556	80.980
40.000	90.797

3.2 Double Bottom

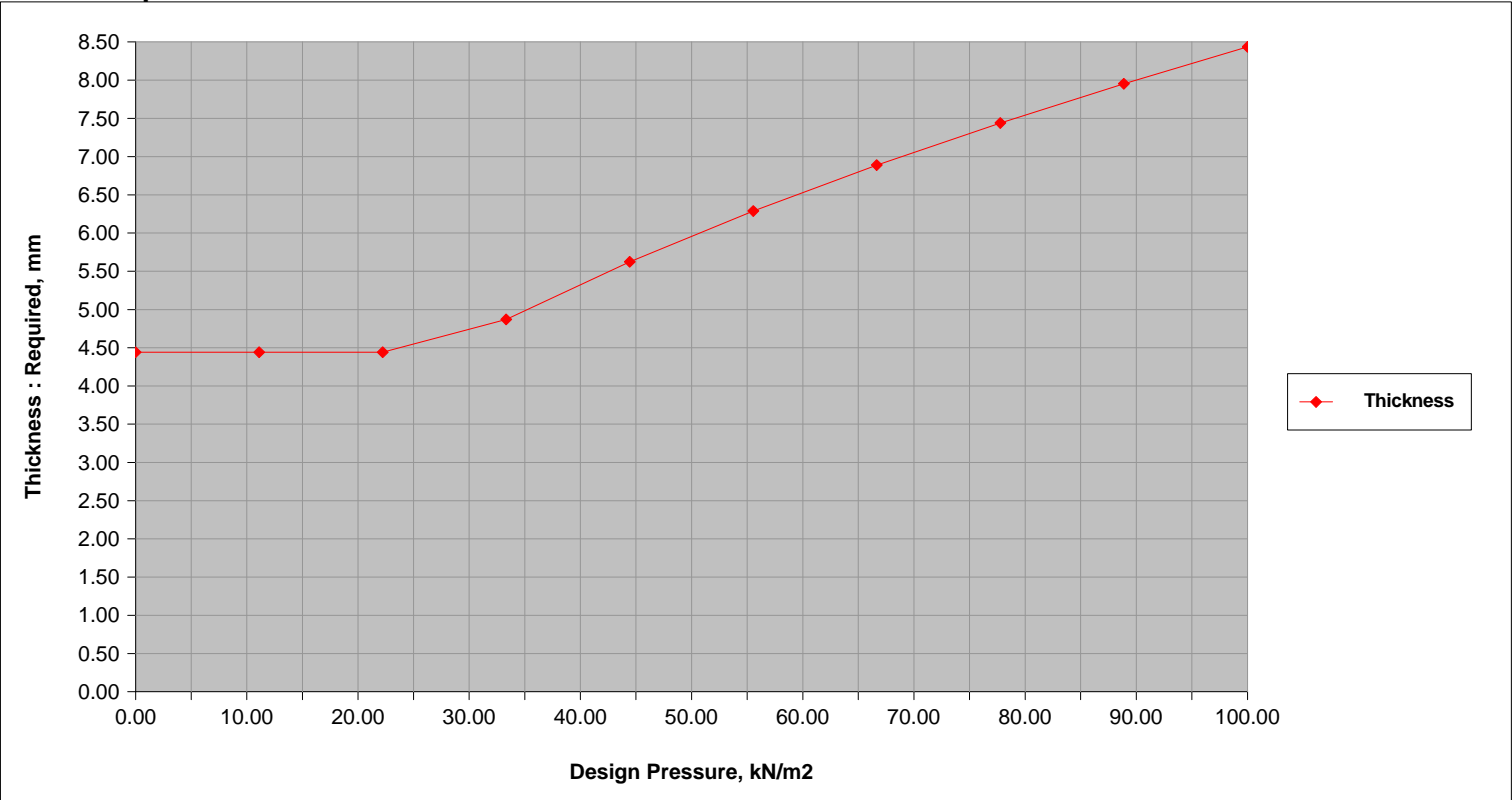
3.2.1 Bar Keel (Fe):QUILLA CENTRAL

Property	Units	Entered	Required
Steel		Steel Material	
Area	cm2	106.250	30.814
Thickness	mm	25.000	20.907

3.2.2 Inner Btm Plate (Fe):PISO DOBLE FONDO

Property	Units	Entered	Derived	Required
Steel		Steel Material		
Curvature	mm	0.000		
Panel Breadth	mm	500.000		
Panel Length	mm	1125.000		
Panel Aspect Ratio		2.250		
Stiffener Spacing	mm	500.000		
Thickness	mm	7.000		6.643
Height above Base	m	1.000		
Distance FWD of AP	m	1.000		
Design Pressure	kN/m2	62.000	61.948	

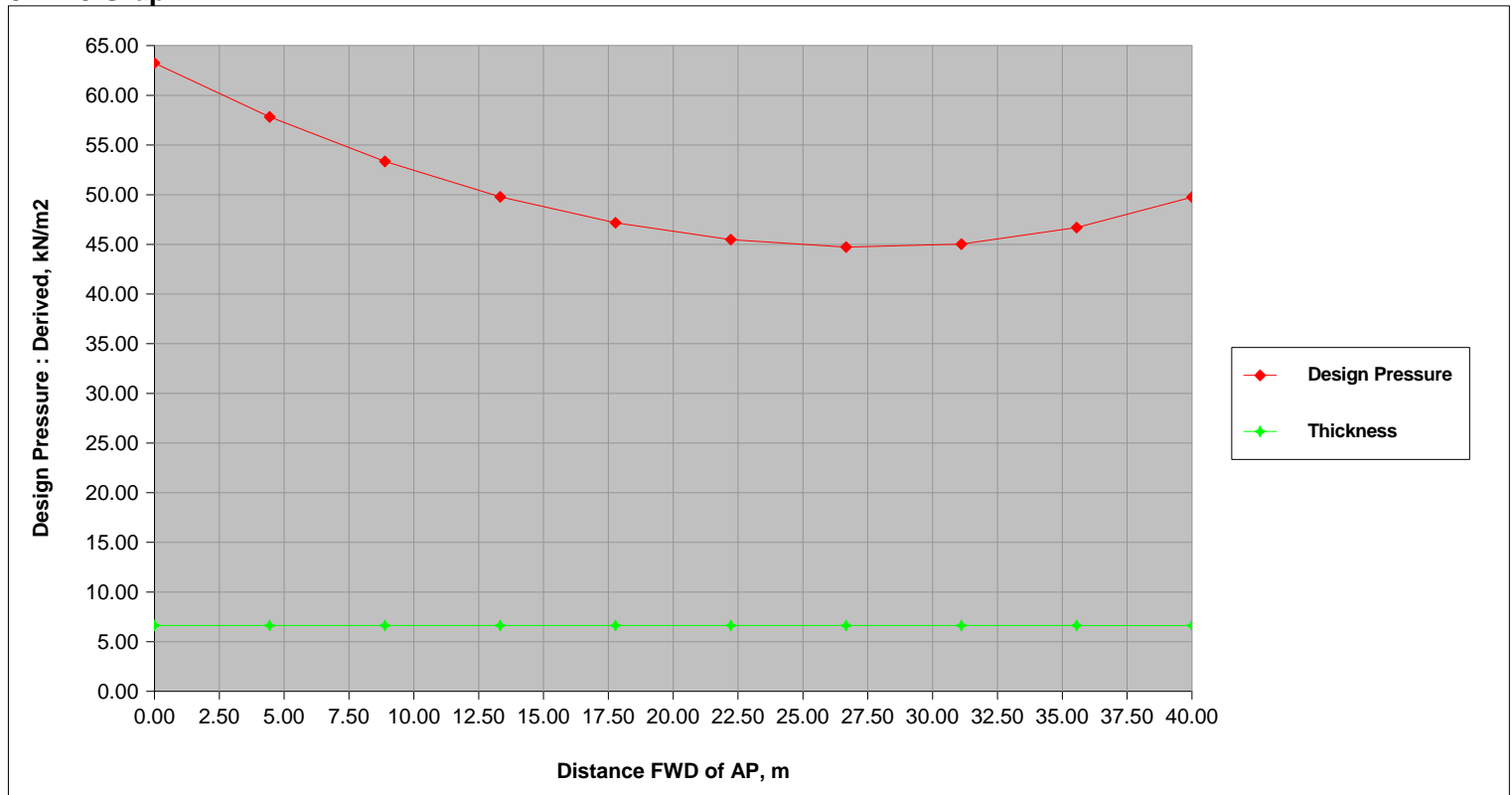
3.2.2.1 Graph



3.2.2.1.2 Table: Graph

Design Pressure	Thickness
0.000	4.441
11.111	4.441
22.222	4.441
33.333	4.871
44.444	5.624
55.556	6.288
66.667	6.888
77.778	7.440
88.889	7.954
100.000	8.436

3.2.2.3 Graph #1



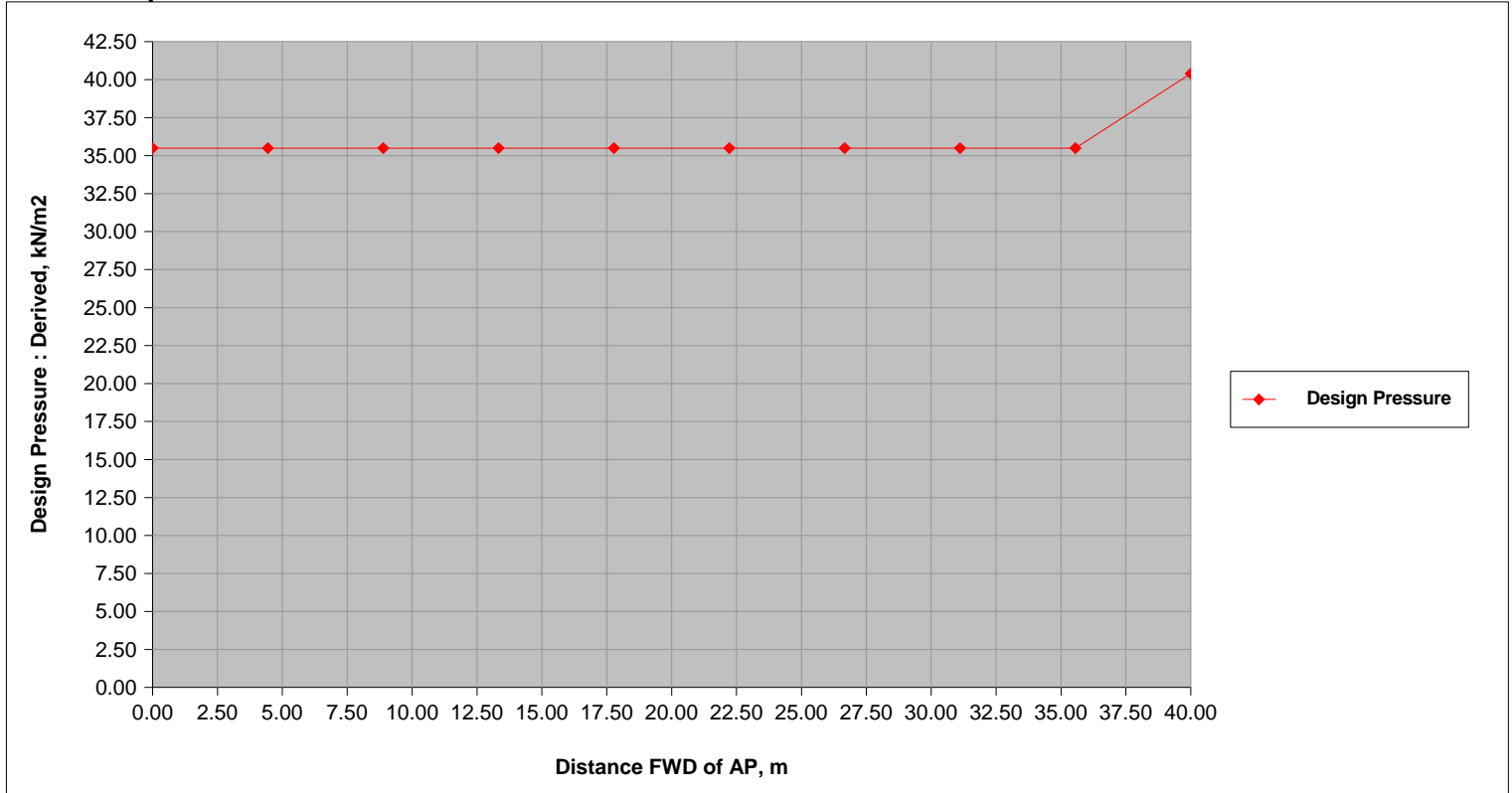
3.2.2.3.4 Table: Graph #1

Distance FWD of AP	Design Pressure	Thickness
0.000	63.249	6.643
4.444	57.828	6.643
8.889	53.341	6.643
13.333	49.786	6.643
17.778	47.166	6.643
22.222	45.478	6.643
26.667	44.724	6.643
31.111	45.015	6.643
35.556	46.684	6.643
40.000	49.753	6.643

3.2.3 Plate Floor DB (Fe):VARENGA FONDO

Property	Units	Entered	Derived	Required
Steel		Steel Material		
Effective Span	m	1.125		
Stiffener Spacing	mm	500.000		
Thickness of Attached Plate	mm	7.000		
Width of Attached Plate	mm	500.000	500.000	
Profile		Flat Bar (Fe):100x10		
Section Modulus	cm3	0.000		12.252
Inertia		0.000		31.940
Web Area	cm2	0.000	10.000	1.132
Angle of Web to Plate	deg	90.000		
Below Tangential Point		Yes		
Height above Base	m	1.000		
Distance FWD of AP	m	14.000		
Design Pressure	kN/m2	35.490	35.490	
Web Thickness	mm	10.000	10.000	4.991

3.2.3.1 Graph



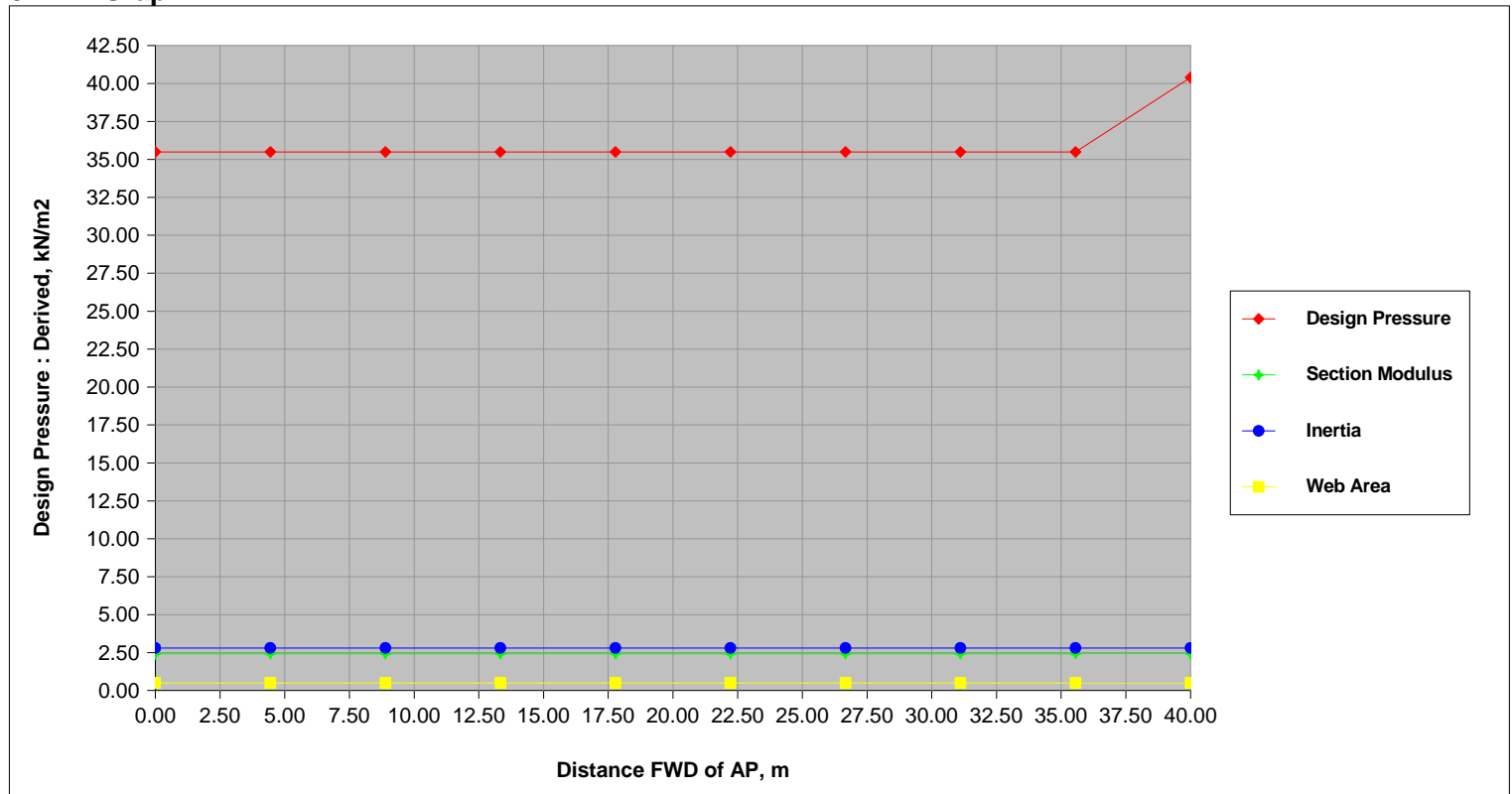
3.2.3.1.2 Table: Graph

Distance FWD of AP	Design Pressure
0.000	35.490
4.444	35.490
8.889	35.490
13.333	35.490
17.778	35.490
22.222	35.490
26.667	35.490
31.111	35.490
35.556	35.490
40.000	40.398

3.2.4 Side Girder DB (Fe):VAGRA LATERAL

Property	Units	Entered	Derived	Required
Steel		Steel Material		
Effective Span	m	0.500		
Stiffener Spacing	mm	500.000		
Thickness of Attached Plate	mm	7.000		
Width of Attached Plate	mm	0.000	500.000	
Profile		Flat Bar (Fe):100x10		
Section Modulus	cm3	0.000		2.420
Inertia		0.000		2.804
Web Area	cm2	0.000	10.000	0.503
Angle of Web to Plate	deg	90.000		
Below Tangential Point		Yes		
Height above Base	m	1.000		
Distance FWD of AP	m	14.000		
Design Pressure	kN/m2	35.490	35.490	

3.2.4.1 Graph



3.2.4.1.2 Table: Graph

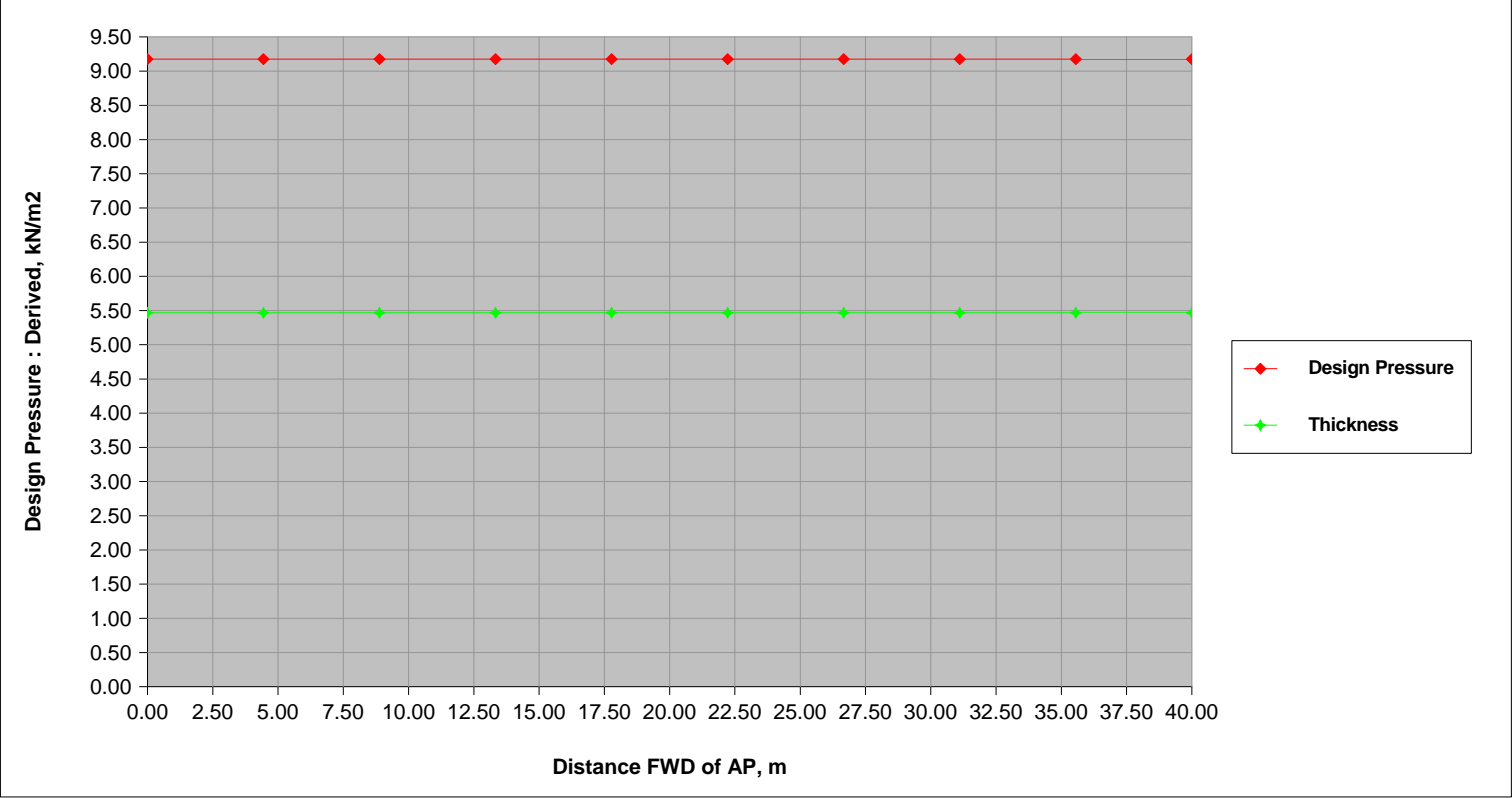
Distance FWD of AP	Design Pressure	Section Modulus	Inertia	Web Area
0.000	35.490	2.420	2.804	0.503
4.444	35.490	2.420	2.804	0.503
8.889	35.490	2.420	2.804	0.503
13.333	35.490	2.420	2.804	0.503
17.778	35.490	2.420	2.804	0.503
22.222	35.490	2.420	2.804	0.503
26.667	35.490	2.420	2.804	0.503
31.111	35.490	2.420	2.804	0.503
35.556	35.490	2.420	2.804	0.503
40.000	40.398	2.420	2.804	0.503

3.3 Deck Structure: CUBIERTA PRINCIPAL

3.3.1 Inner Deck Plate (Fe):CUBIERTA PRINCIPAL

Property	Units	Entered	Derived	Required
Steel		Steel Material		
Curvature	mm	0.000		
Panel Breadth	mm	500.000	500.000	
Panel Length	mm	2250.000		
Panel Aspect Ratio		0.000	4.500	
Stiffener Spacing	mm	500.000		
Thickness	mm	6.000		5.467
Distance FWD of AP	m	20.000		
Design Pressure	kN/m2	42.000	9.174	

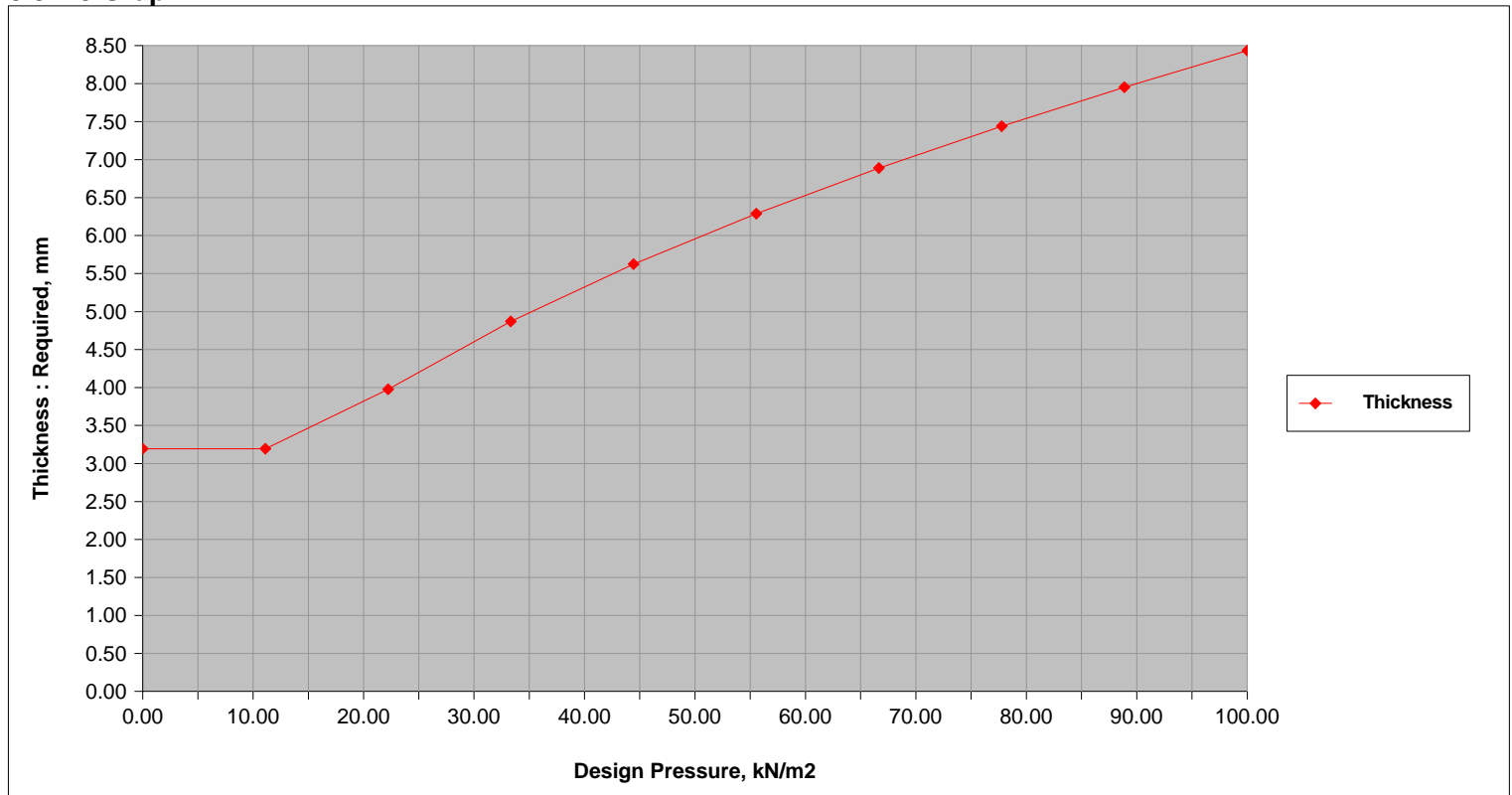
3.3.1.1 Graph



3.3.1.1.2 Table: Graph

Distance FWD of AP	Design Pressure	Thickness
0.000	9.174	5.467
4.444	9.174	5.467
8.889	9.174	5.467
13.333	9.174	5.467
17.778	9.174	5.467
22.222	9.174	5.467
26.667	9.174	5.467
31.111	9.174	5.467
35.556	9.174	5.467
40.000	9.174	5.467

3.3.1.3 Graph #1



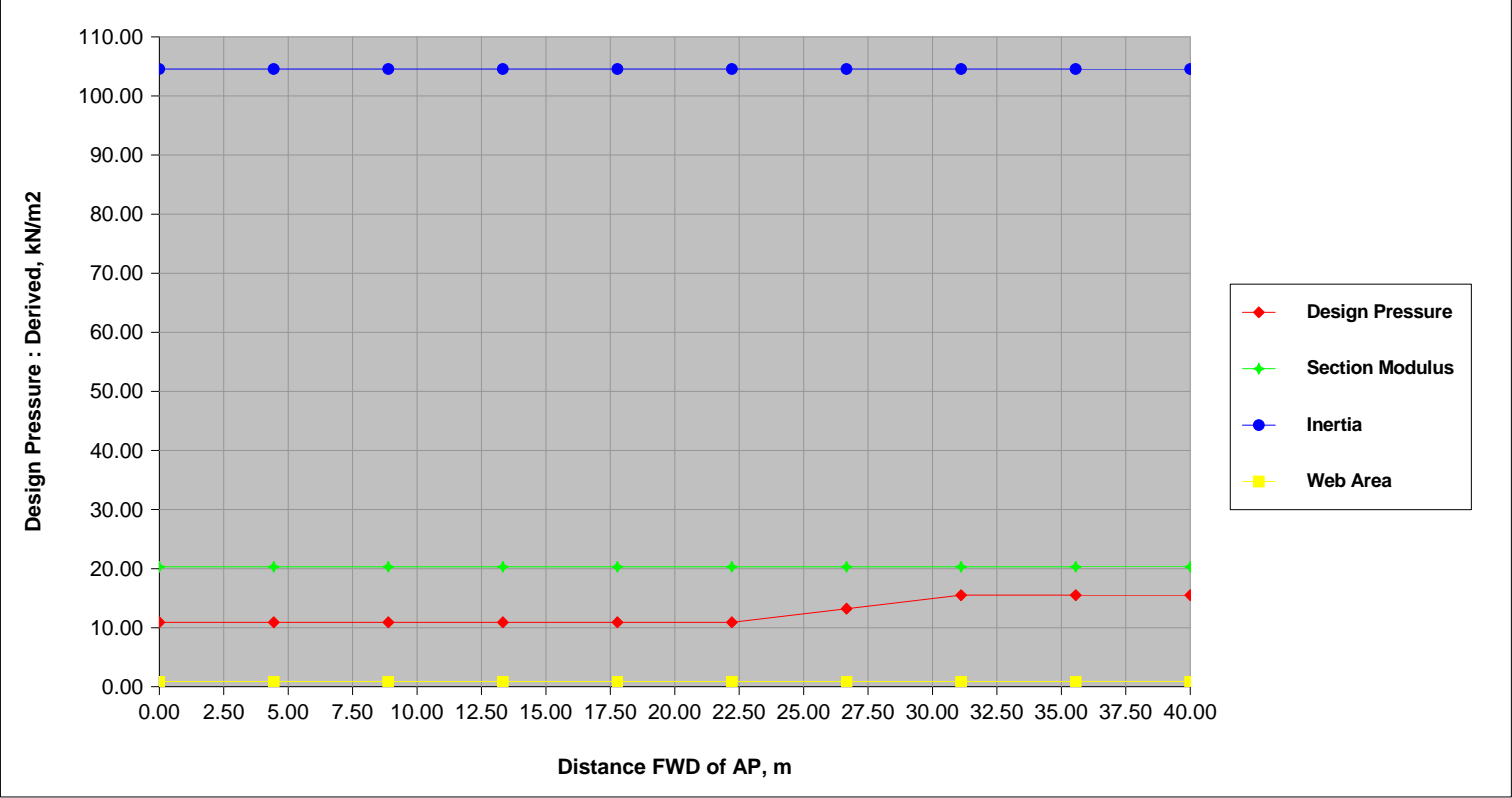
3.3.1.3.4 Table: Graph #1

Design Pressure	Thickness
0.000	3.194
11.111	3.194
22.222	3.977
33.333	4.871
44.444	5.624
55.556	6.288
66.667	6.888
77.778	7.440
88.889	7.954
100.000	8.436

3.3.2 Weather Deck Stf (Fe):ESLORA

Property	Units	Entered	Derived	Required
Steel		Steel Material		
Effective Span	m	2.000		
Stiffener Spacing	mm	500.000		
Thickness of Attached Plate	mm	6.000		
Width of Attached Plate	mm	0.000	355.288	
Profile		Built L (Fe):140X8+110X8		
Section Modulus	cm3	0.000	143.056	20.306
Inertia		0.000	2732.942	104.564
Web Area	cm2	0.000	11.200	0.879
Angle of Web to Plate	deg	90.000		
Distance FWD of AP	m	29.000		
Design Pressure	kN/m2	15.509	15.509	

3.3.2.1 Graph



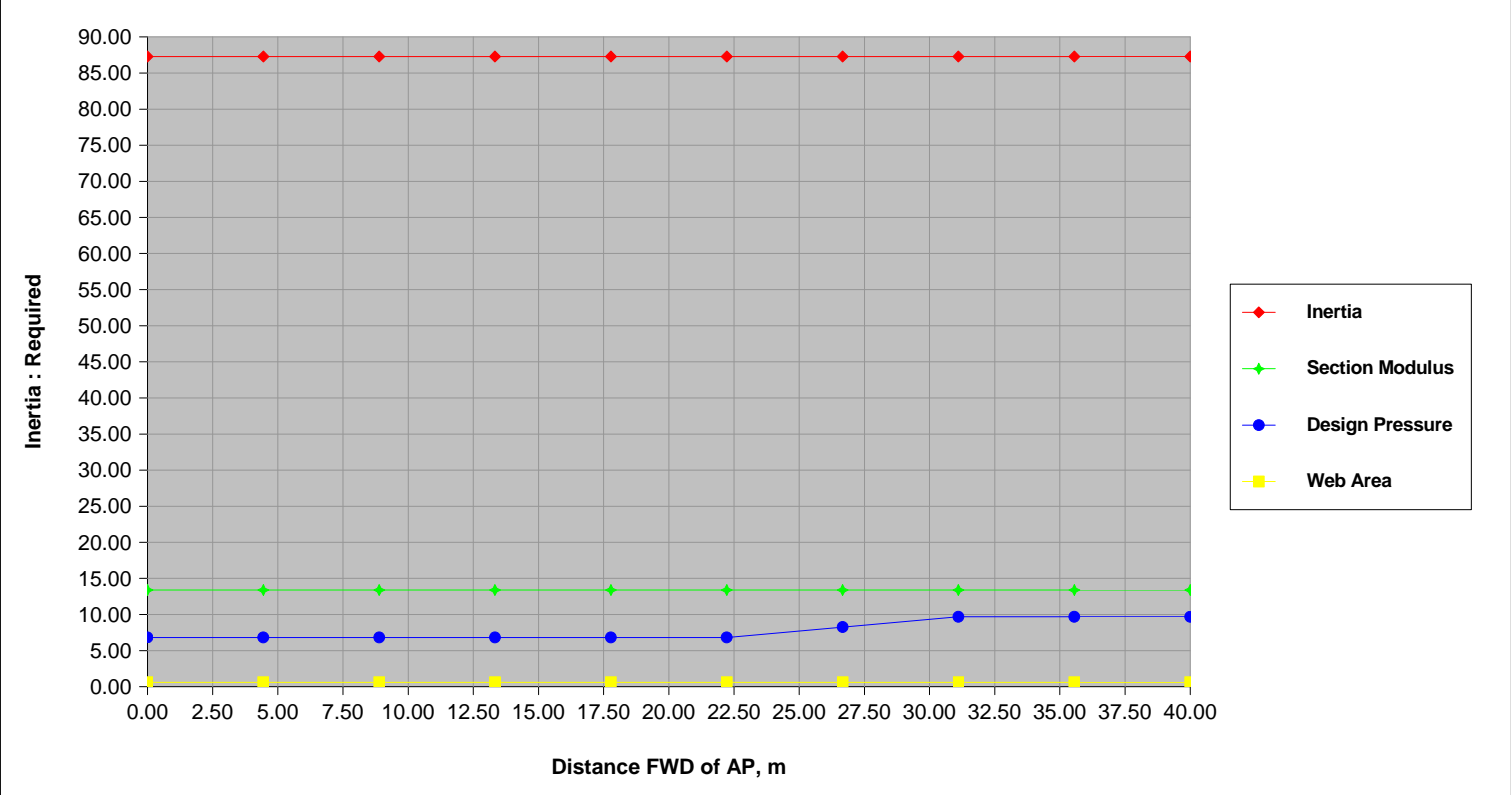
3.3.2.1.2 Table: Graph

Distance FWD of AP	Design Pressure	Section Modulus	Inertia	Web Area
0.000	10.922	20.306	104.564	0.879
4.444	10.922	20.306	104.564	0.879
8.889	10.922	20.306	104.564	0.879
13.333	10.922	20.306	104.564	0.879
17.778	10.922	20.306	104.564	0.879
22.222	10.922	20.306	104.564	0.879
26.667	13.215	20.306	104.564	0.879
31.111	15.509	20.306	104.564	0.879
35.556	15.509	20.306	104.564	0.879
40.000	15.509	20.306	104.564	0.879

3.3.3 Weather Deck Pri.Stf (Fe):BAO

Property	Units	Entered	Derived	Required
Steel		Steel Material		
Effective Span	m	2.250		
Stiffener Spacing	mm	500.000		
Thickness of Attached Plate	mm	6.000		
Width of Attached Plate	mm	0.000	500.000	
Profile		Built L (Fe):120X8+120X8		
Section Modulus	cm3	0.000	138.138	13.395
Inertia		0.000	2693.700	87.297
Web Area	cm2	0.000	9.600	0.619
Angle of Web to Plate	deg	90.000		
Distance FWD of AP	m	29.000		
Design Pressure	kN/m2	9.700	9.693	

3.3.3.1 Graph



3.3.3.1.2 Table: Graph

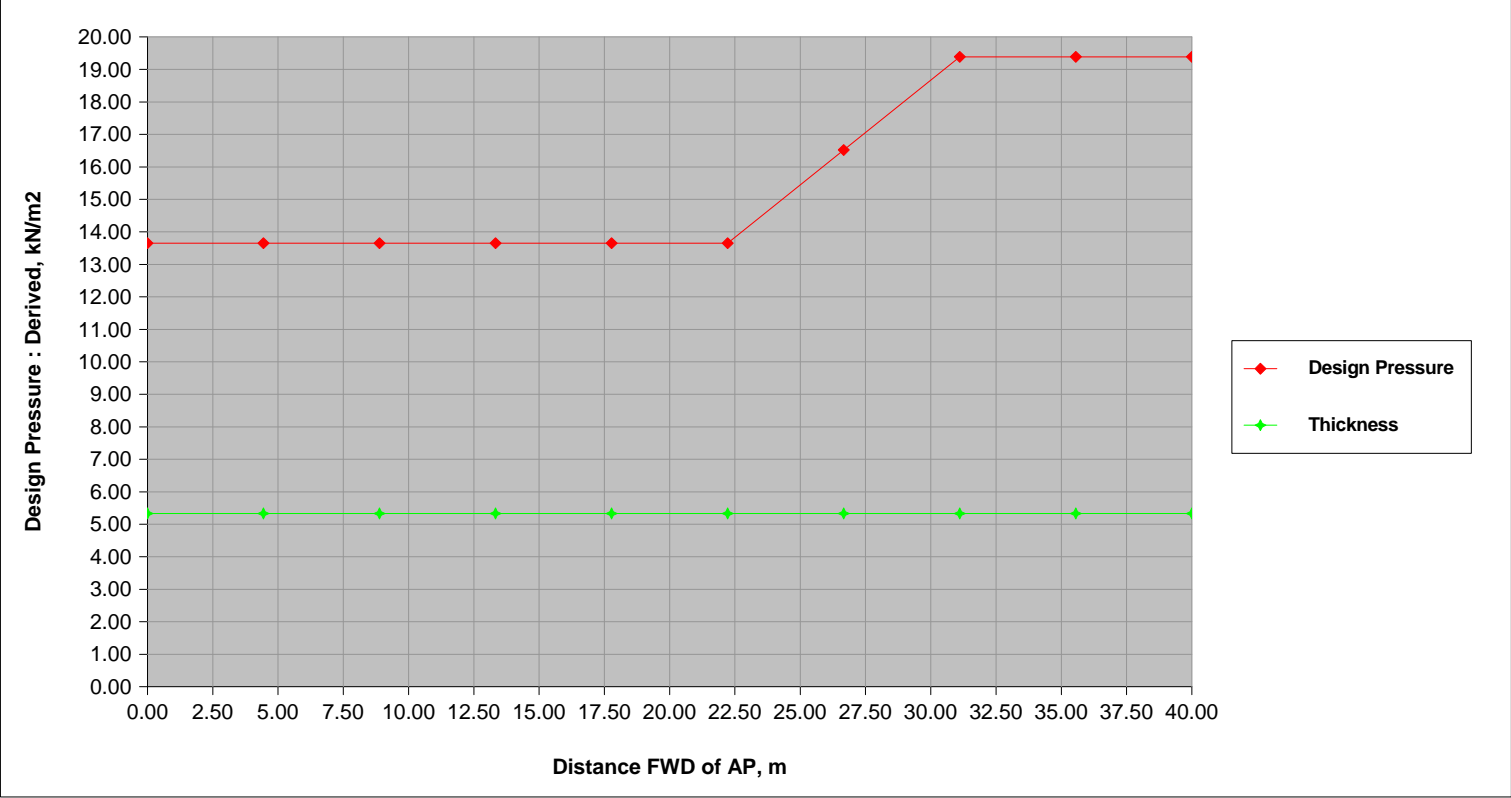
Distance FWD of AP	Inertia	Section Modulus	Design Pressure	Web Area
0.000	87.297	13.395	6.826	0.619
4.444	87.297	13.395	6.826	0.619
8.889	87.297	13.395	6.826	0.619
13.333	87.297	13.395	6.826	0.619
17.778	87.297	13.395	6.826	0.619
22.222	87.297	13.395	6.826	0.619
26.667	87.297	13.395	8.260	0.619
31.111	87.297	13.395	9.693	0.619
35.556	87.297	13.395	9.693	0.619
40.000	87.297	13.395	9.693	0.619

3.4 Deck Structure: CUBIERTA SUPERIOR

3.4.1 Weather Deck Plate (Fe):CUBIERTA SUPERIOR

Property	Units	Entered	Derived	Required
Steel		Steel Material		
Curvature	mm	0.000		
Panel Breadth	mm	500.000	500.000	
Panel Length	mm	2250.000		
Panel Aspect Ratio		4.500	4.500	
Stiffener Spacing	mm	500.000		
Thickness	mm	6.500		5.336
Distance FWD of AP	m	30.000		
Design Pressure	kN/m2	40.000	19.386	

3.4.1.1 Graph



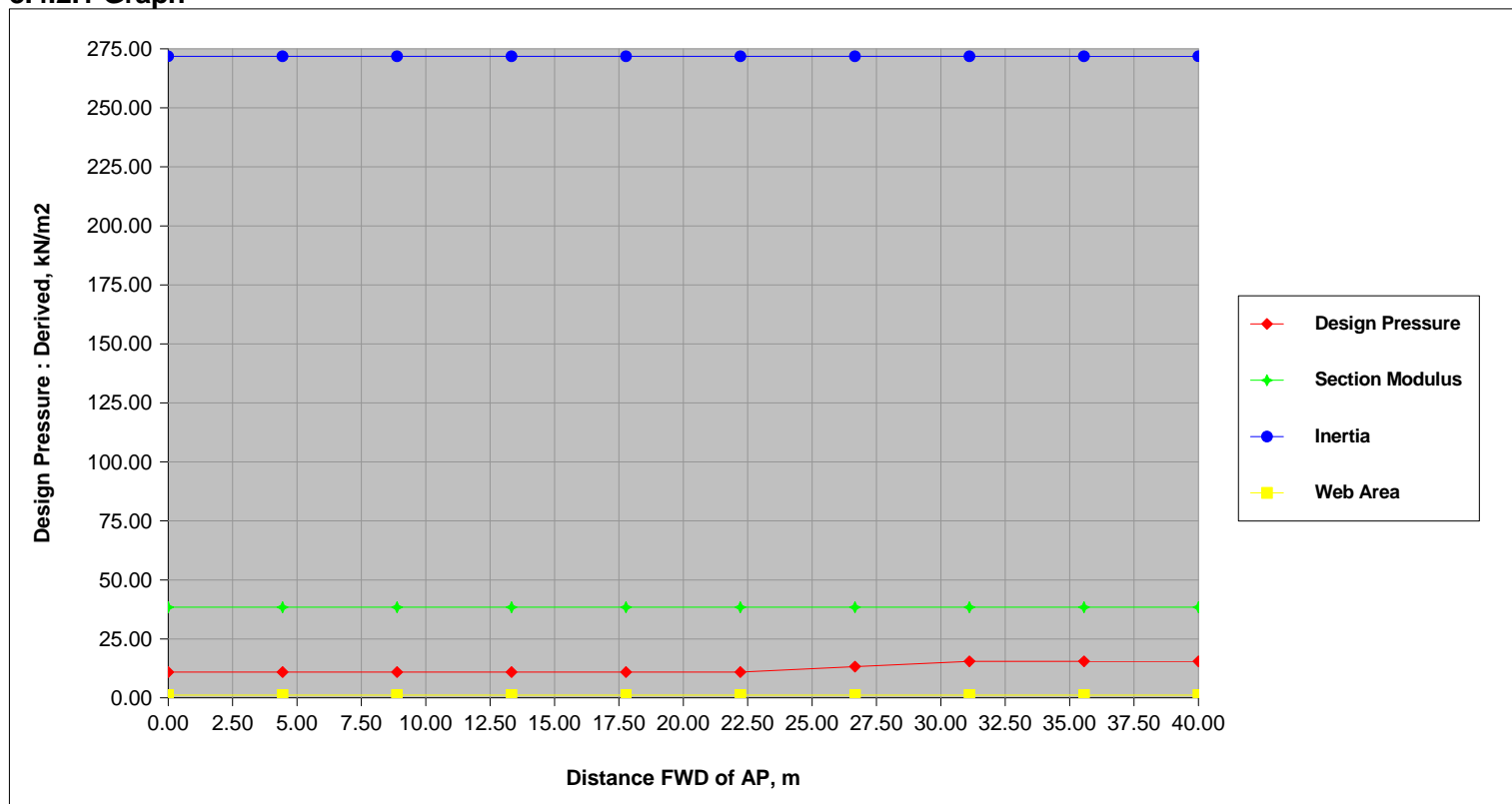
3.4.1.1.2 Table: Graph

Distance FWD of AP	Design Pressure	Thickness
0.000	13.652	5.336
4.444	13.652	5.336
8.889	13.652	5.336
13.333	13.652	5.336
17.778	13.652	5.336
22.222	13.652	5.336
26.667	16.519	5.336
31.111	19.386	5.336
35.556	19.386	5.336
40.000	19.386	5.336

3.4.2 Weather Deck Stf (Fe):BAO

Property	Units	Entered	Derived	Required
Steel		Steel Material		
Effective Span	m	2.750		
Stiffener Spacing	mm	500.000		
Thickness of Attached Plate	mm	6.500		
Width of Attached Plate	mm	0.000	384.896	
Profile		Built L (Fe):130X130X9		
Section Modulus	cm3	0.000	174.296	38.394
Inertia		0.000	3465.912	271.844
Web Area	cm2	0.000	11.700	1.209
Angle of Web to Plate	deg	90.000		
Distance FWD of AP	m	30.000		
Design Pressure	kN/m2	15.510	15.509	

3.4.2.1 Graph



3.4.2.1.2 Table: Graph

Distance FWD of AP	Design Pressure	Section Modulus	Inertia	Web Area
0.000	10.922	38.394	271.844	1.209
4.444	10.922	38.394	271.844	1.209
8.889	10.922	38.394	271.844	1.209
13.333	10.922	38.394	271.844	1.209
17.778	10.922	38.394	271.844	1.209
22.222	10.922	38.394	271.844	1.209
26.667	13.215	38.394	271.844	1.209
31.111	15.509	38.394	271.844	1.209
35.556	15.509	38.394	271.844	1.209
40.000	15.509	38.394	271.844	1.209

3.4.3 Weather Deck Stf (Fe):ESLORA

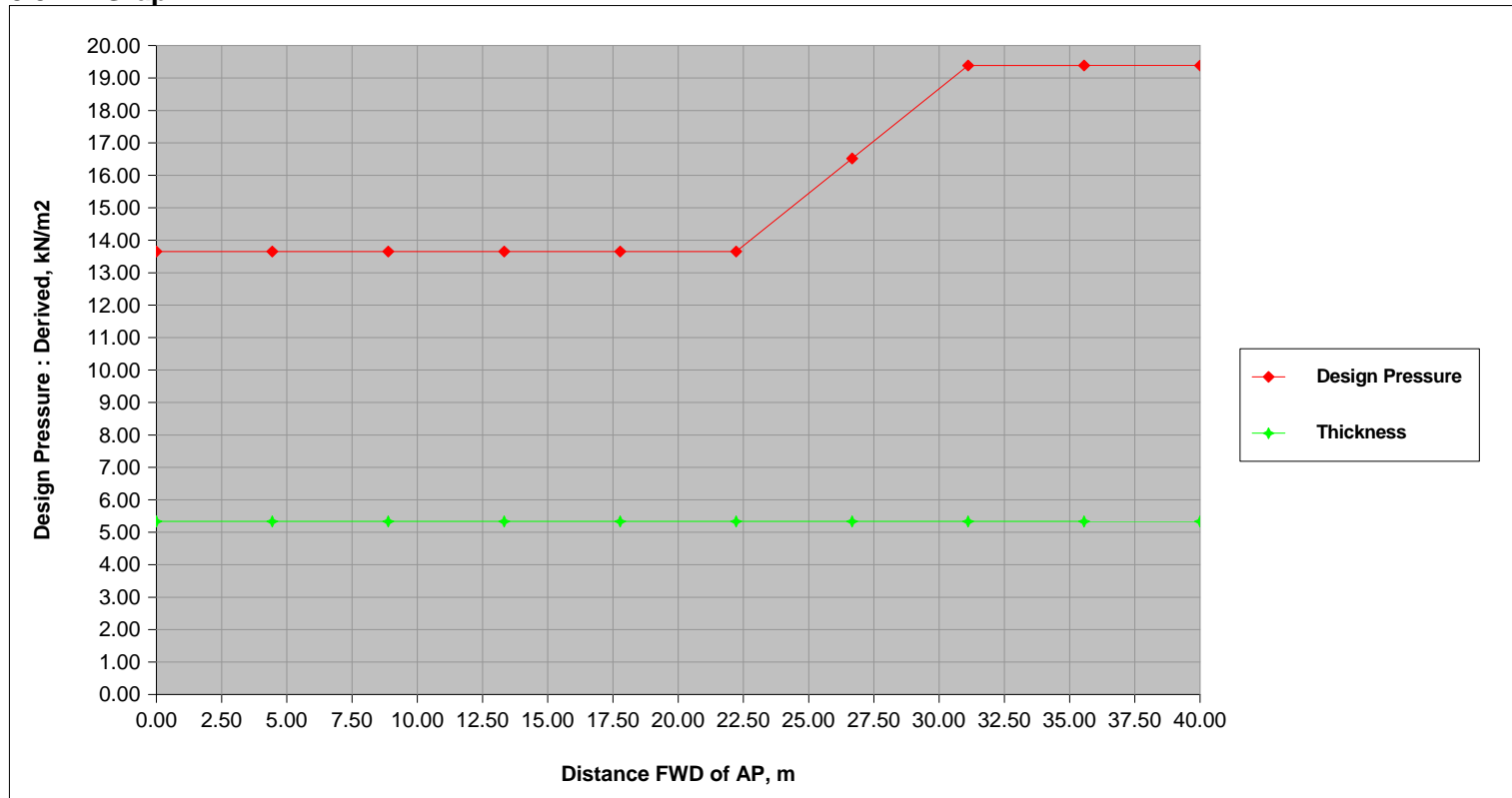
Property	Units	Entered	Derived	Required
Steel		Steel Material		
Effective Span	m	2.000		
Stiffener Spacing	mm	500.000		
Thickness of Attached Plate	mm	6.500		
Width of Attached Plate	mm	500.000	384.896	
Profile		Built L (Fe):140X12+130X12		
Section Modulus	cm3	0.000	248.274	20.308
Inertia		0.000	5070.531	104.571
Web Area	cm2	0.000	16.800	0.879
Angle of Web to Plate	deg	90.000		
Distance FWD of AP	m	30.000		
Design Pressure	kN/m2	15.510	15.509	

3.5 Deck Structure:CUBIERTA PUENTE

3.5.1 Weather Deck Plate (Fe):CUBIERTA PUENTE

Property	Units	Entered	Derived	Required
Steel		Steel Mater		
Curvature	mm	0.000		
Panel Breadth	mm	500.000	500.000	
Panel Length	mm	2500.000		
Panel Aspect Ratio		0.000	5.000	
Stiffener Spacing	mm	500.000		
Thickness	mm	6.000		5.336
Distance FWD of AP	m	30.000		
Design Pressure	kN/m2	40.000	19.386	

3.5.1.1 Graph



3.5.1.1.2 Table: Graph

Distance FWD of AP	Design Pressure	Thickness
0.000	13.652	5.336
4.444	13.652	5.336
8.889	13.652	5.336
13.333	13.652	5.336
17.778	13.652	5.336
22.222	13.652	5.336
26.667	16.519	5.336
31.111	19.386	5.336
35.556	19.386	5.336
40.000	19.386	5.336

3.5.2 Weather Deck Stf (Fe):ESLORA

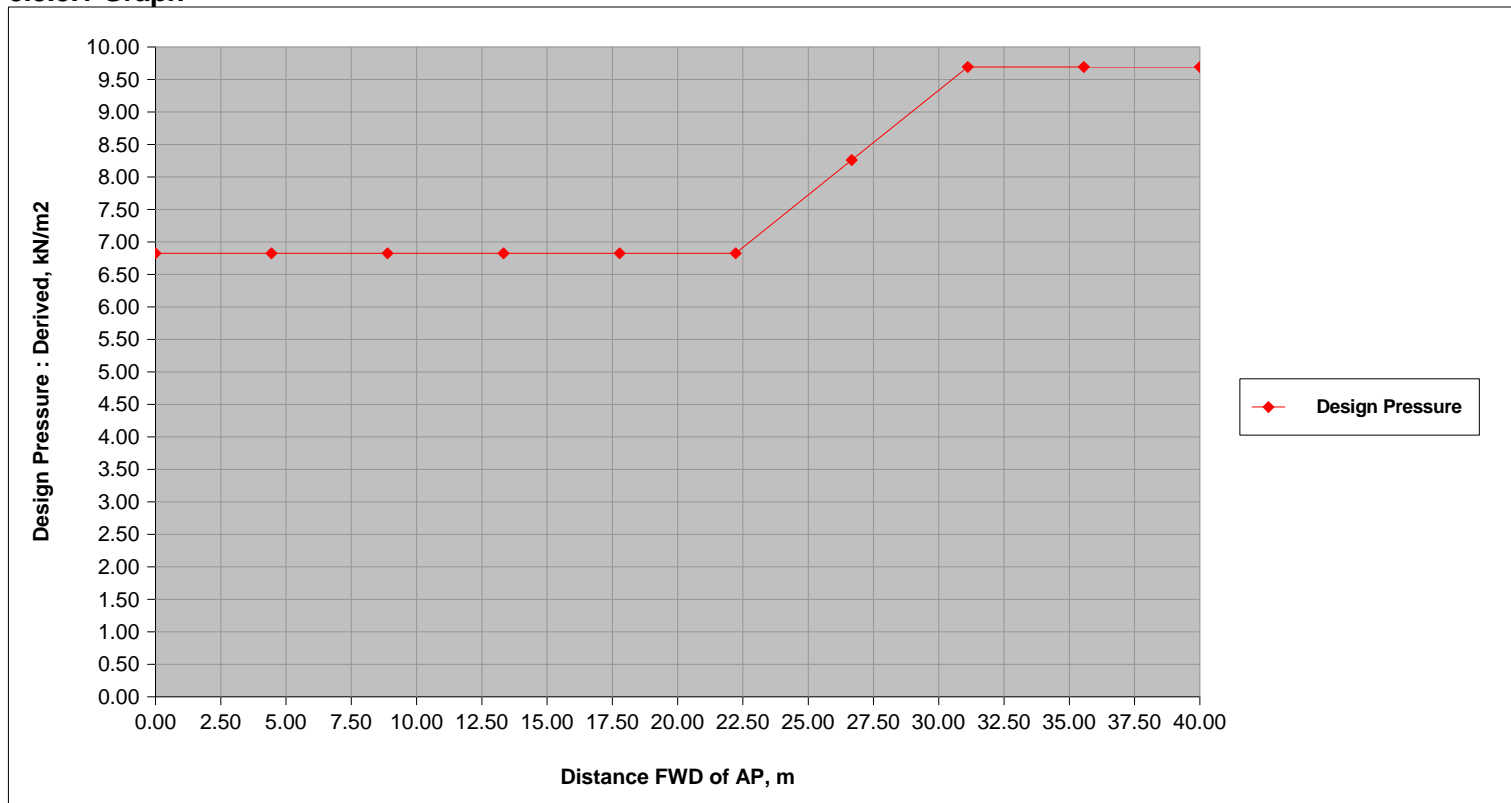
Property	Units	Entered	Derived	Required
Steel		Steel Material		
Effective Span	m	3.100		
Stiffener Spacing	mm	500.000		
Thickness of Attached Plate	mm	6.000		
Width of Attached Plate	mm	500.000	355.288	
Profile		Built L (Fe):120x120x12		

Property	Units	Entered	Derived	Required
Section Modulus	cm3	0.000	185.380	62.913
Inertia		0.000	1496.923	502.141
Web Area	cm2	0.000	12.960	1.758
Angle of Web to Plate	deg	90.000		
Distance FWD of AP	m	30.000		
Design Pressure	kN/m2	20.000	15.509	

3.5.3 Weather Deck Pri.Stf (Fe):BAO

Property	Units	Entered	Derived	Required
Steel		Steel Material		
Effective Span	m	2.500		
Stiffener Spacing	mm	500.000		
Thickness of Attached Plate	mm	6.000		
Width of Attached Plate	mm	0.000	500.000	
Profile		Built L (Fe):60x60x6		
Section Modulus	cm3	0.000		34.097
Inertia		0.000		246.906
Web Area	cm2	0.000	3.240	1.417
Angle of Web to Plate	deg	90.000		
Distance FWD of AP	m	30.000		
Design Pressure	kN/m2	20.000	9.693	

3.5.3.1 Graph



3.5.3.1.2 Table: Graph

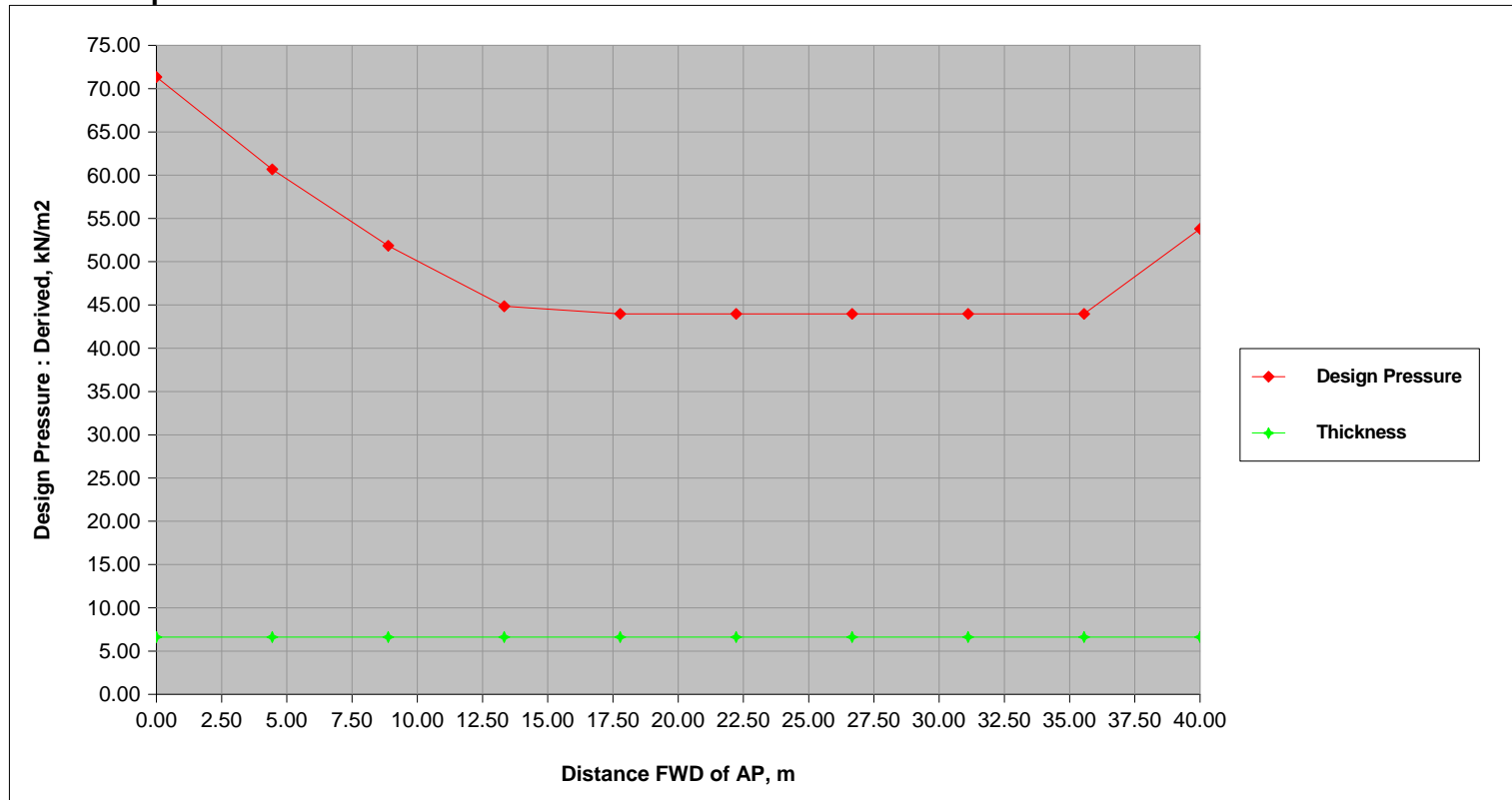
Distance FWD of AP	Design Pressure
0.000	6.826
4.444	6.826
8.889	6.826
13.333	6.826
17.778	6.826
22.222	6.826
26.667	8.260
31.111	9.693
35.556	9.693
40.000	9.693

3.6 Side Shell:BAJO CBTA PRINCIPAL

3.6.1 Side Shell Plate (Fe)

Property	Units	Entered	Derived	Required
Steel		Steel Material		
Curvature	mm	0.000		
Panel Breadth	mm	0.000	500.000	
Panel Length	mm	2750.000		
Panel Aspect Ratio		0.000	5.500	
Stiffener Spacing	mm	500.000		
Thickness	mm	7.500		6.630
Height of Chine	m	n/a		
Height above Base	m	2.350		
Distance FWD of AP	m	1.000		
Design Pressure	kN/m2	70.000	68.781	
Slamming Zone		Yes		

3.6.1.1 Graph



3.6.1.1.2 Table: Graph

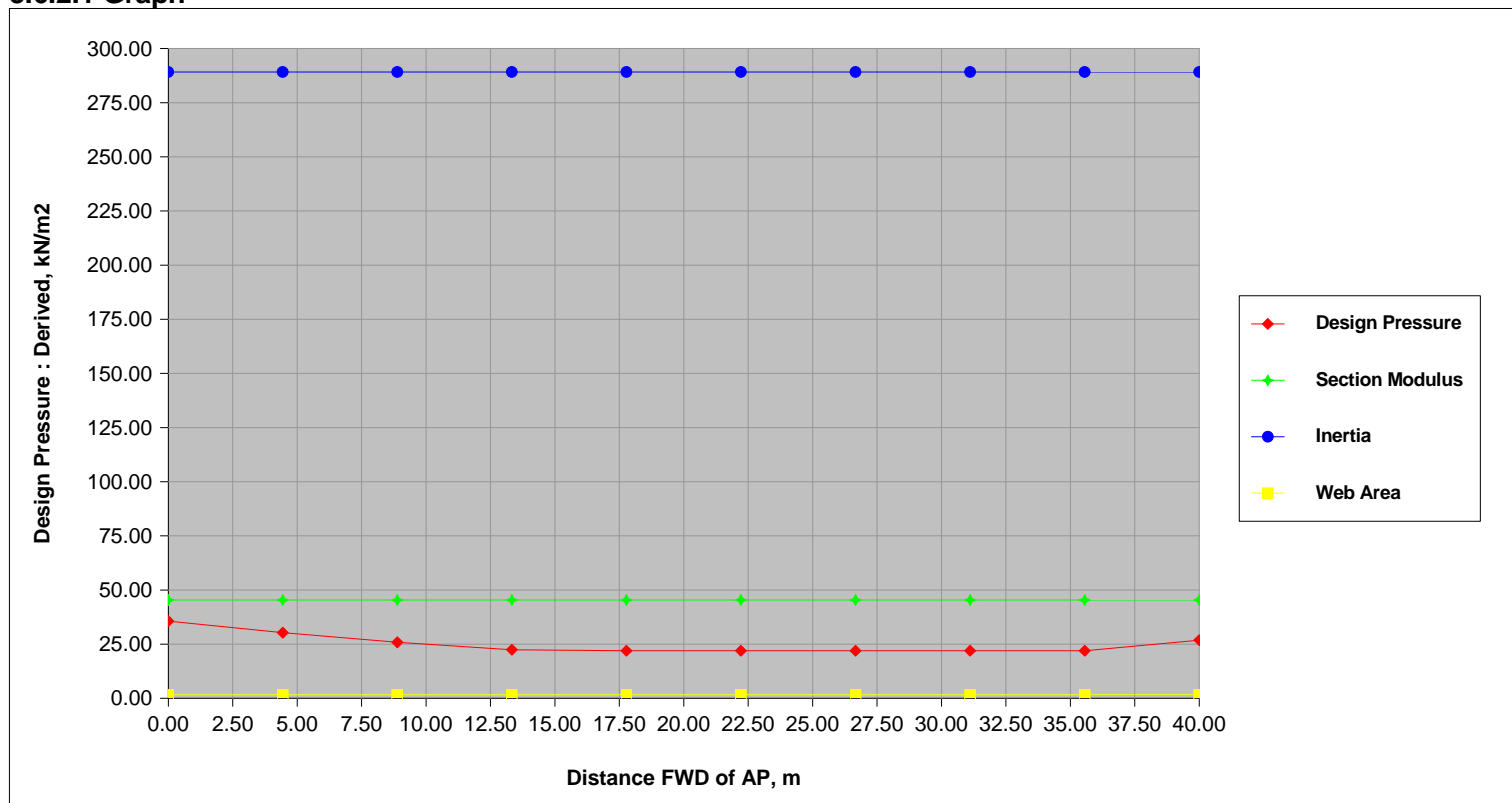
Distance FWD of AP	Design Pressure	Thickness
0.000	71.342	6.630
4.444	60.673	6.630
8.889	51.841	6.630
13.333	44.846	6.630
17.778	43.980	6.630
22.222	43.980	6.630
26.667	43.980	6.630
31.111	43.980	6.630
35.556	43.980	6.630
40.000	53.797	6.630

3.6.2 Side Trans.Frm (Fe):CUADERNAS

Property	Units	Entered	Derived	Required
Steel		Steel Material		
Effective Span	m	2.750		
Stiffener Spacing	mm	500.000		

Property	Units	Entered	Derived	Required
Thickness of Attached Plate	mm	6.000		
Width of Attached Plate	mm	0.000	500.000	
Profile		Built L (Fe):90x90x8		
Section Modulus	cm3	0.000	73.904	45.383
Inertia		0.000	525.026	289.196
Web Area	cm2	0.000	6.480	1.715
Angle of Web to Plate	deg	90.000		
Height of Chine	m	n/a		
Height above Base	m	2.350		
Distance FWD of AP	m	30.000		
Design Pressure	kN/m2	22.000	21.990	

3.6.2.1 Graph



3.6.2.1.2 Table: Graph

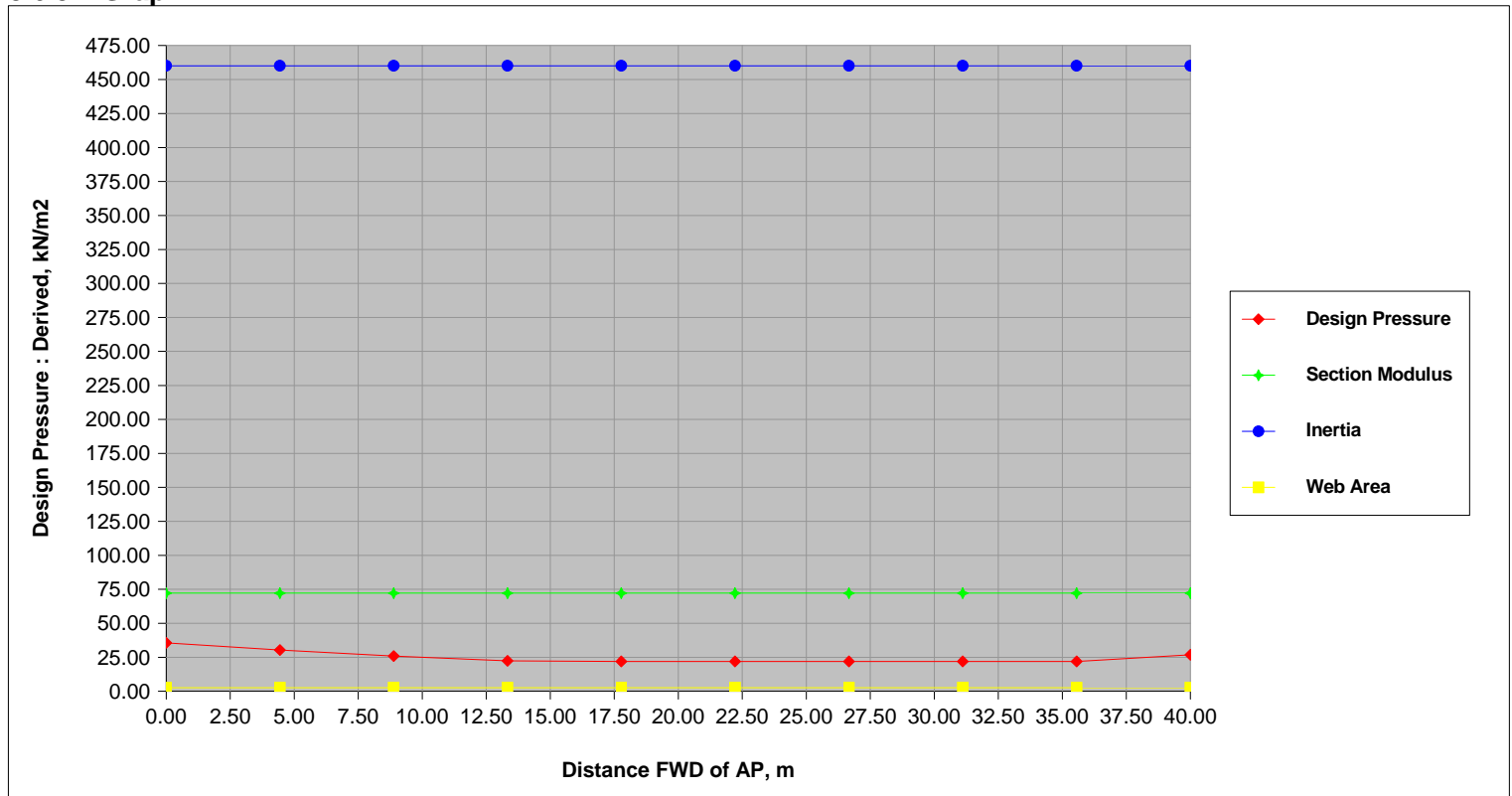
Distance FWD of AP	Design Pressure	Section Modulus	Inertia	Web Area
0.000	35.671	45.383	289.196	1.715
4.444	30.336	45.383	289.196	1.715
8.889	25.920	45.383	289.196	1.715
13.333	22.423	45.383	289.196	1.715
17.778	21.990	45.383	289.196	1.715
22.222	21.990	45.383	289.196	1.715
26.667	21.990	45.383	289.196	1.715
31.111	21.990	45.383	289.196	1.715
35.556	21.990	45.383	289.196	1.715
40.000	26.898	45.383	289.196	1.715

3.6.3 Side Trans.Web.Frm (Fe):MAESTRA

Property	Units	Entered	Derived	Required
Steel		Steel Material		
Effective Span	m	2.750		
Stiffener Spacing	mm	500.000		
Thickness of Attached Plate	mm	6.000		
Width of Attached Plate	mm	0.000	500.000	
Profile		Built L (Fe):90x90x8		
Section Modulus	cm3	0.000	73.904	72.201

Property	Units	Entered	Derived	Required
Inertia		0.000	525.026	460.085
Web Area	cm2	0.000	6.480	2.728
Angle of Web to Plate	deg	90.000		
Height of Chine	m	n/a		
Height above Base	m	2.350		
Distance FWD of AP	m	1.000		
Design Pressure	kN/m2	35.000	34.391	

3.6.3.1 Graph



3.6.3.1.2 Table: Graph

Distance FWD of AP	Design Pressure	Section Modulus	Inertia	Web Area
0.000	35.671	72.201	460.085	2.728
4.444	30.336	72.201	460.085	2.728
8.889	25.920	72.201	460.085	2.728
13.333	22.423	72.201	460.085	2.728
17.778	21.990	72.201	460.085	2.728
22.222	21.990	72.201	460.085	2.728
26.667	21.990	72.201	460.085	2.728
31.111	21.990	72.201	460.085	2.728
35.556	21.990	72.201	460.085	2.728
40.000	26.898	72.201	460.085	2.728

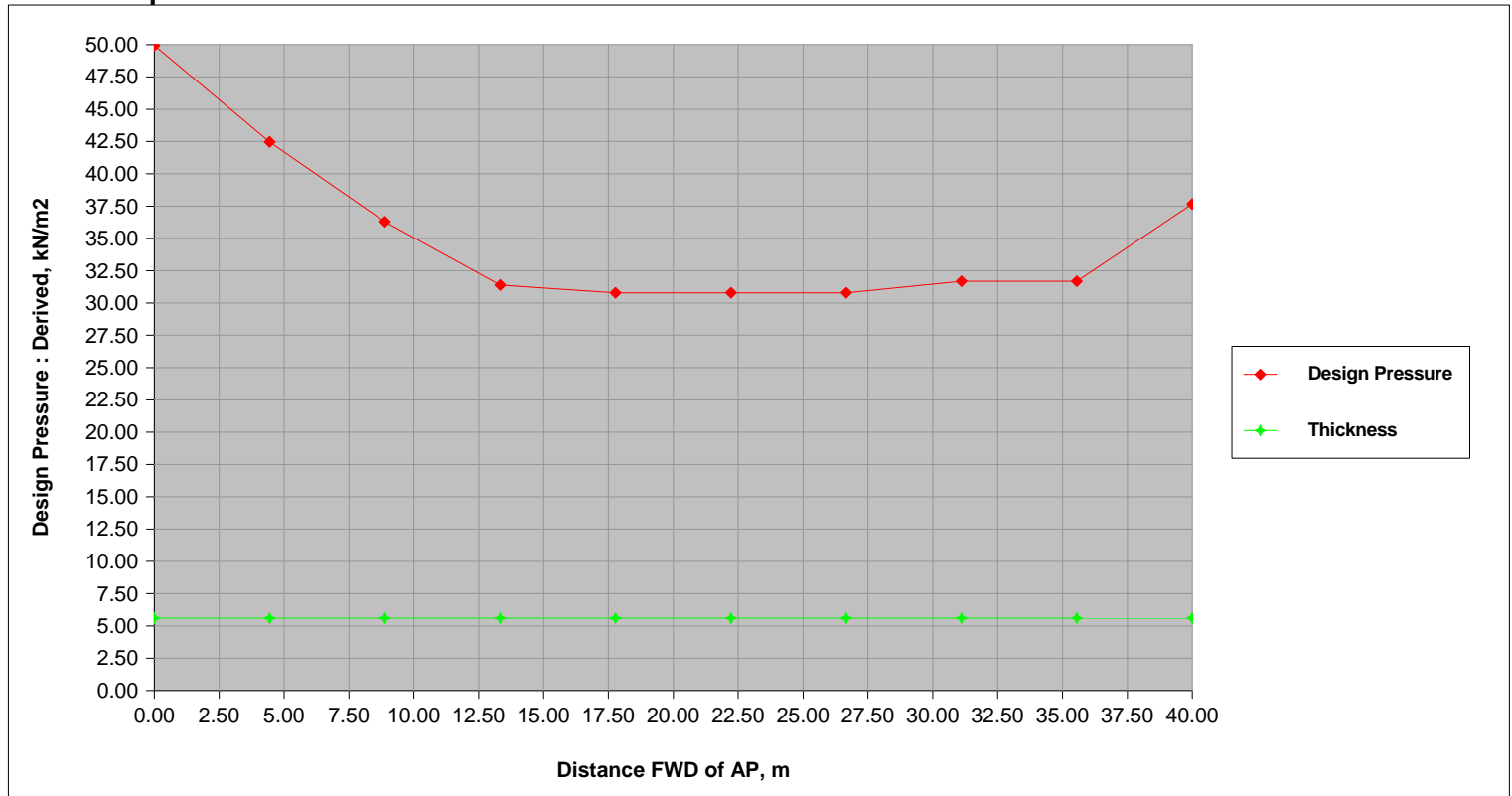
3.7 Side Shell: BAJO CBTA SUPERIOR

3.7.1 Side Shell Plate (Fe): CUBIERTA SUPERIOR

Property	Units	Entered	Derived	Required
Steel		Steel Material		
Curvature	mm	0.000		
Panel Breadth	mm	500.000	500.000	
Panel Length	mm	2400.000		
Panel Aspect Ratio		0.000	4.800	
Stiffener Spacing	mm	500.000		
Thickness	mm	7.500		5.604
Height of Chine	m	n/a		
Height above Base	m	4.900		

Property	Units	Entered	Derived	Required
Distance FWD of AP	m	1.000		
Design Pressure	kN/m2	50.000	48.147	
Slamming Zone		Yes		

3.7.1.1 Graph



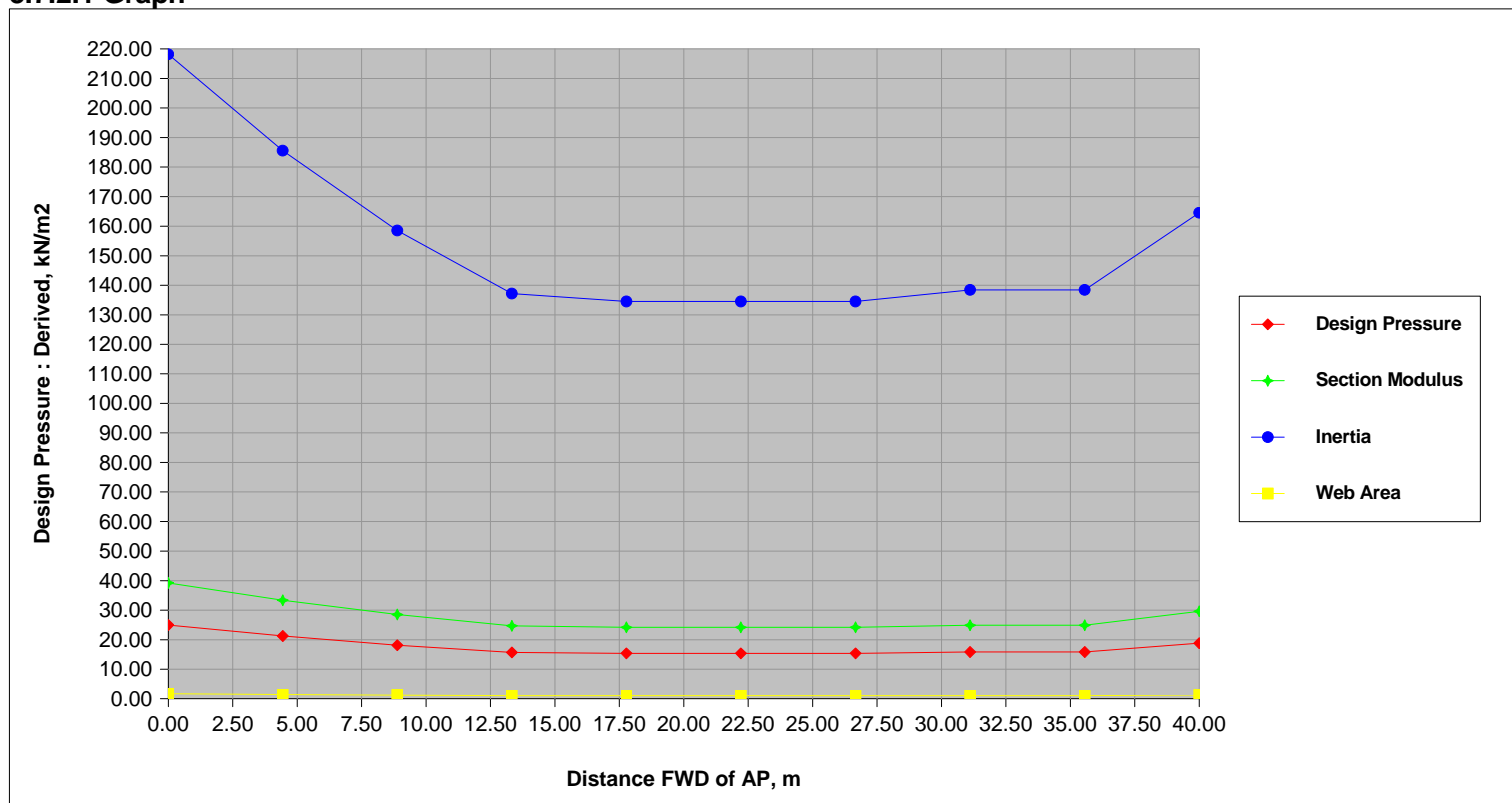
3.7.1.1.2 Table: Graph

Distance FWD of AP	Design Pressure	Thickness
0.000	49.939	5.604
4.444	42.471	5.604
8.889	36.289	5.604
13.333	31.392	5.604
17.778	30.786	5.604
22.222	30.786	5.604
26.667	30.786	5.604
31.111	31.683	5.604
35.556	31.683	5.604
40.000	37.658	5.604

3.7.2 Side Trans.Frm (Fe):CUADERNA

Property	Units	Entered	Derived	Required
Steel		Steel Material		
Effective Span	m	2.400		
Stiffener Spacing	mm	500.000		
Thickness of Attached Plate	mm	7.500		
Width of Attached Plate	mm	0.000	500.000	
Profile		Built L (Fe):60X7.5+50X7.5		
Section Modulus	cm3	0.000	30.861	24.890
Inertia		0.000	318.350	138.422
Web Area	cm2	0.000	4.500	1.078
Angle of Web to Plate	deg	90.000		
Height of Chine	m	n/a		
Height above Base	m	4.900		
Distance FWD of AP	m	30.000		
Design Pressure	kN/m2	0.000	15.842	

3.7.2.1 Graph



3.7.2.1.2 Table: Graph

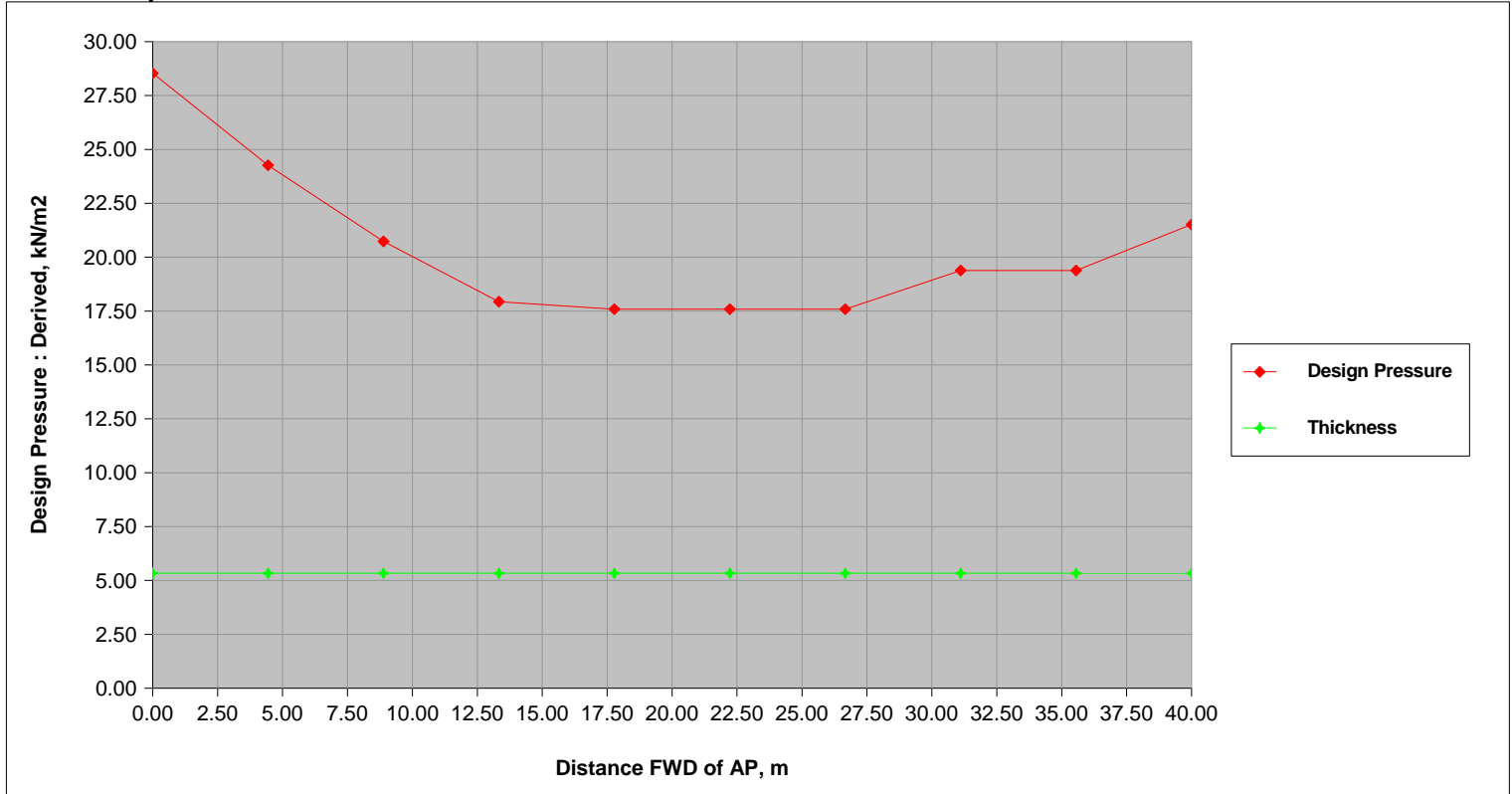
Distance FWD of AP	Design Pressure	Section Modulus	Inertia	Web Area
0.000	24.970	39.232	218.181	1.699
4.444	21.235	33.365	185.553	1.445
8.889	18.144	28.508	158.542	1.234
13.333	15.696	24.662	137.150	1.068
17.778	15.393	24.186	134.503	1.047
22.222	15.393	24.186	134.503	1.047
26.667	15.393	24.186	134.503	1.047
31.111	15.842	24.890	138.422	1.078
35.556	15.842	24.890	138.422	1.078
40.000	18.829	29.584	164.524	1.281

3.8 Side Shell:CUBIERTA PUENTE

3.8.1 Side Shell Plate (Fe)

Property	Units	Entered	Derived	Required
Steel		Steel Material		
Curvature	mm	0.000		
Panel Breadth	mm	500.000	500.000	
Panel Length	mm	2500.000		
Panel Aspect Ratio		5.000		
Stiffener Spacing	mm	500.000		
Thickness	mm	6.000		5.336
Height of Chine	m	n/a		
Height above Base	m	9.000		
Distance FWD of AP	m	1.000		
Design Pressure	kN/m2	40.000	27.512	
Slamming Zone		No		

3.8.1.1 Graph



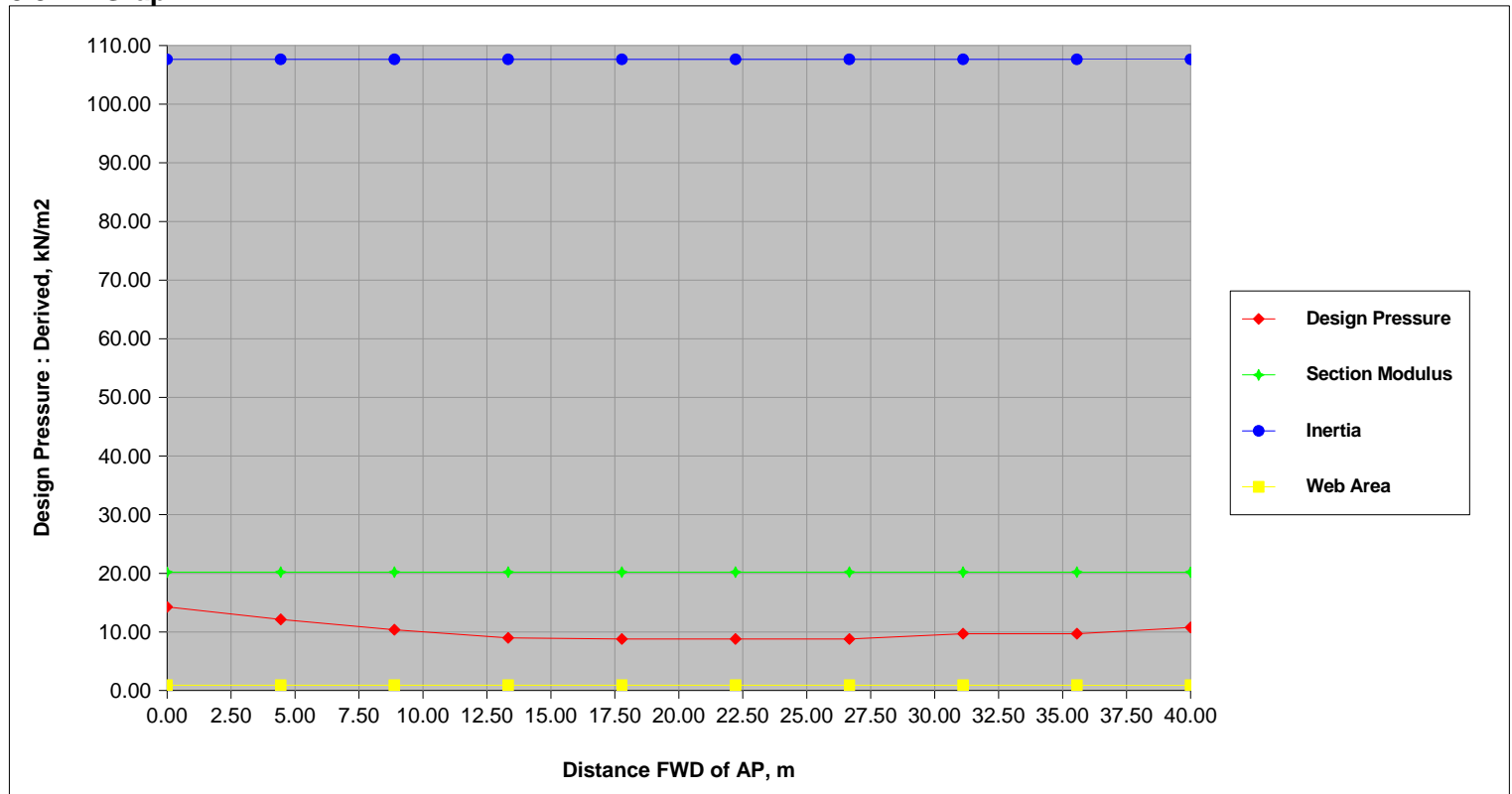
3.8.1.1.2 Table: Graph

Distance FWD of AP	Design Pressure	Thickness
0.000	28.537	5.336
4.444	24.269	5.336
8.889	20.736	5.336
13.333	17.938	5.336
17.778	17.592	5.336
22.222	17.592	5.336
26.667	17.592	5.336
31.111	19.386	5.336
35.556	19.386	5.336
40.000	21.519	5.336

3.8.2 Side Trans.Frm (Fe)

Property	Units	Entered	Derived	Required
Steel		Steel Material		
Effective Span	m	2.300		
Stiffener Spacing	mm	500.000		
Thickness of Attached Plate	mm	6.000		
Width of Attached Plate	mm	500.000	500.000	
Profile		Built L (Fe):60x60x6		
Section Modulus	cm3	0.000		20.202
Inertia		0.000		107.667
Web Area	cm2	0.000	3.240	0.913
Angle of Web to Plate	deg	90.000		
Height of Chine	m	n/a		
Height above Base	m	9.000		
Distance FWD of AP	m	1.000		
Design Pressure	kN/m2	14.000	13.756	

3.8.2.1 Graph



3.8.2.1.2 Table: Graph

Distance FWD of AP	Design Pressure	Section Modulus	Inertia	Web Area
0.000	14.268	20.202	107.667	0.913
4.444	12.135	20.202	107.667	0.913
8.889	10.368	20.202	107.667	0.913
13.333	8.969	20.202	107.667	0.913
17.778	8.796	20.202	107.667	0.913
22.222	8.796	20.202	107.667	0.913
26.667	8.796	20.202	107.667	0.913
31.111	9.693	20.202	107.667	0.913
35.556	9.693	20.202	107.667	0.913
40.000	10.759	20.202	107.667	0.913

3.9 Bulkheads: MAMPAROS

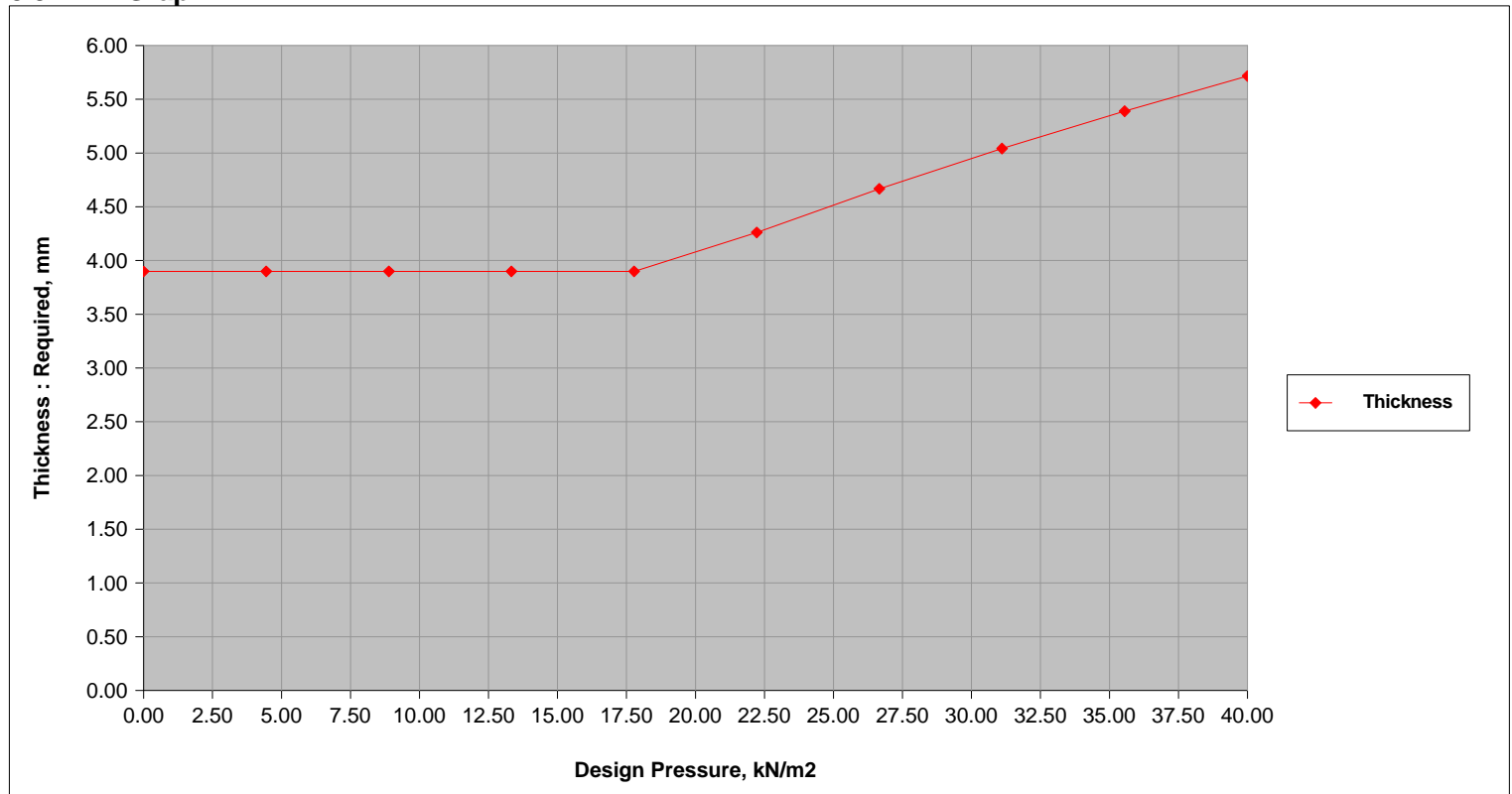
3.9.1 Deep Tank Bulkhead

Property	Units	Entered
Height of Tank Top	m	3.700
Height of Overflow	m	6.750

3.9.1.1 Deep Tank Bhd. Plate (Fe)

Property	Units	Entered	Derived	Required
Steel		Steel Material		
Curvature	mm	0.000		
Panel Breadth	mm	9.000	500.000	
Panel Length	mm	950.000		
Panel Aspect Ratio		9.000	1.900	
Stiffener Spacing	mm	500.000		
Thickness	mm	7.000		5.717
Load Head	m	1.600	1.525	
Height above Base	m	3.700		
Design Pressure	kN/m2	40.000	17.920	

3.9.1.1.1 Graph



3.9.1.1.1.2 Table: Graph

Design Pressure	Thickness
0.000	3.899
4.444	3.899
8.889	3.899
13.333	3.899
17.778	3.899
22.222	4.261
26.667	4.668
31.111	5.042
35.556	5.390
40.000	5.717

3.9.1.2 Deep Tank Bhd. Stf (Fe)

Property	Units	Entered	Derived	Required
Steel		Steel Material		
Effective Span	m	1.400		
Stiffener Spacing	mm	475.000		
Thickness of Attached Plate	mm	7.000		
Width of Attached Plate	mm	0.000	414.503	
Profile		Built L (Fe):70x70x7		
Section Modulus	cm3	0.000	40.572	24.380
Inertia		0.000	245.552	87.878
Web Area	cm2	0.000	4.410	1.508
Angle of Web to Plate	deg	90.000		
Load Head	m	1.525	1.525	
Height above Base	m	3.700		
Design Pressure	kN/m2	40.000	17.080	

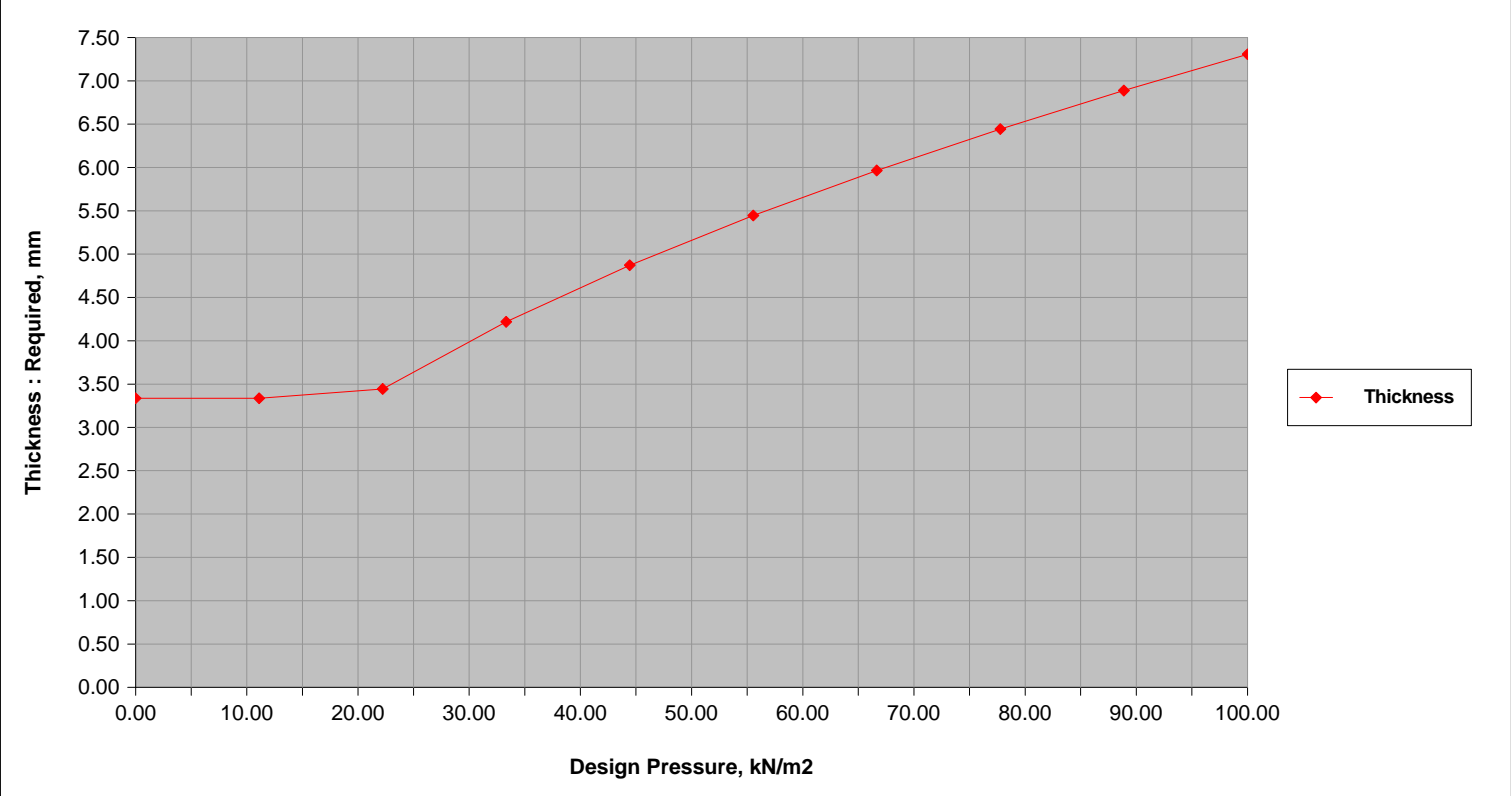
3.9.2 Watertight Bulkhead: MAMPAROS ESTANCOS

Property	Units	Entered
Height of Bhd. Deck	m	3.700

3.9.2.1 Watertight Bhd. Plate (Fe):MAMPAROS ESTANCOS

Property	Units	Entered	Derived	Required
Steel		Steel Material		
Curvature	mm	0.000		
Panel Breadth	mm	500.000	500.000	
Panel Length	mm	2800.000		
Panel Aspect Ratio		0.000	5.600	
Stiffener Spacing	mm	500.000		
Thickness	mm	7.000		6.854
Load Head	m	0.000	2.700	
Height above Base	m	1.000		
Design Pressure	kN/m2	88.000	19.440	

3.9.2.1.1 Graph



3.9.2.1.1.2 Table: Graph

Design Pressure	Thickness
0.000	3.336
11.111	3.336
22.222	3.444
33.333	4.218
44.444	4.871
55.556	5.446
66.667	5.965
77.778	6.443
88.889	6.888
100.000	7.306

3.9.2.2 Watertight Bhd. Stf (Fe):REFUERZOS

Property	Units	Entered	Derived	Required
Steel		Steel Material		
Effective Span	m	3.100		
Stiffener Spacing	mm	475.000		
Thickness of Attached Plate	mm	7.000		
Width of Attached Plate	mm	0.000	414.503	
Profile		Built L (Fe):70x70x7		
Section Modulus	cm3	0.000	40.572	25.559

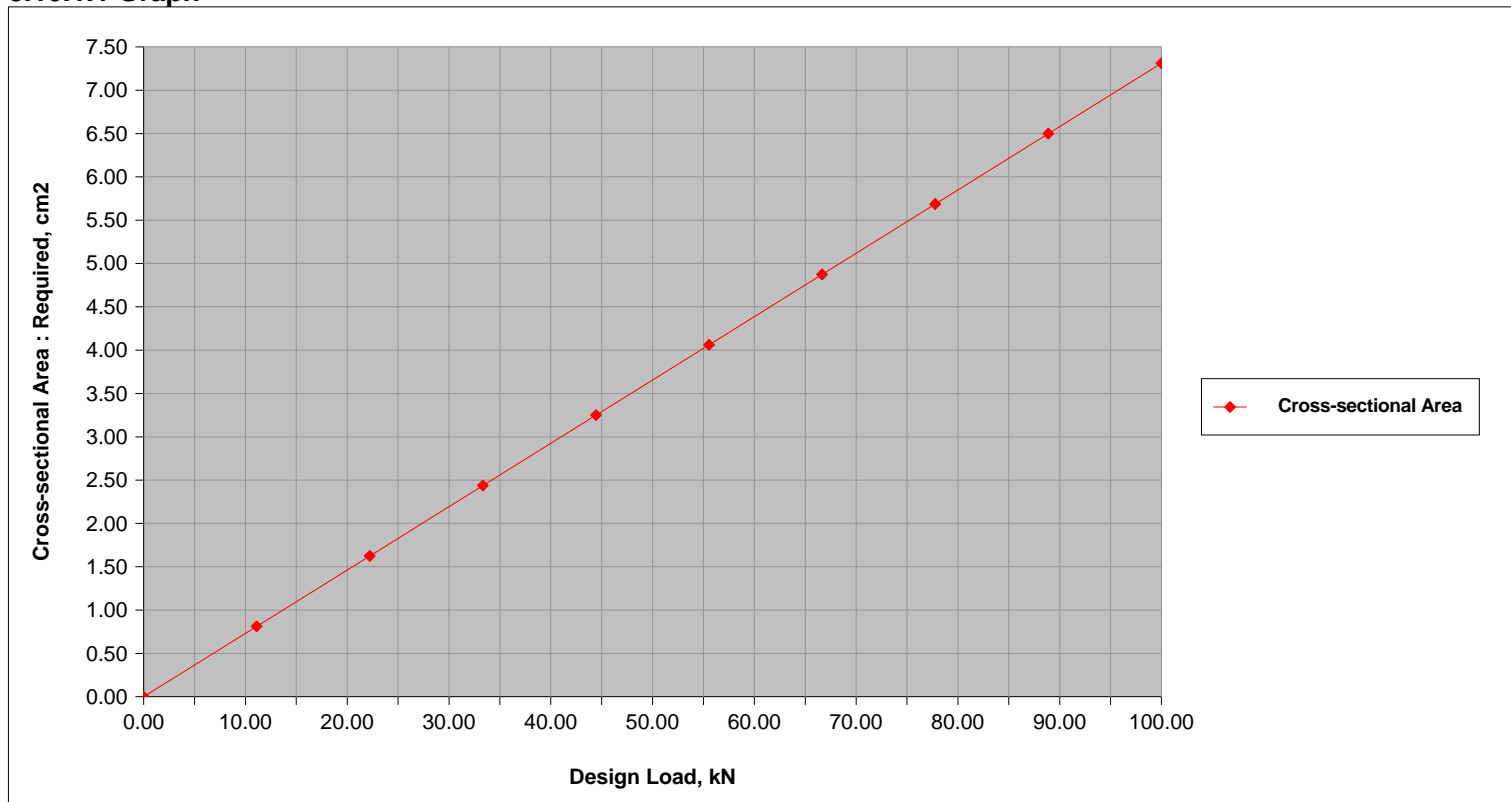
Property	Units	Entered	Derived	Required
Inertia		0.000	245.552	160.999
Web Area	cm2	0.000	4.410	0.857
Angle of Web to Plate	deg	90.000		
Load Head	m	0.000	1.950	
Height above Base	m	1.750		
Design Pressure	kN/m2	15.000	14.040	
Load Model		A		

3.10 Pillars: PUNTALES

3.10.1 Tubular Pillar (Fe):PUNTALES

Property	Units	Entered	Derived	Required
Steel		Steel Material		
Outer Diameter	mm	90.000		
Cross-sectional Area	cm2	0.000	22.902	2.194
Thickness	mm	9.000		5.358
Radius of Gyration	cm	0.000	2.881	1.818
Effective Span	m	2.000		
Location		Inner Deck		
End Fixity		Partial		
Deck Girder Design Pressure	kN/m2	5.723		
Load from Pillar Above	kN	7.000		
Girder Spacing	m	2.000		
Dist. between Adjacent Spans	m	2.000		
Design Load	kN	30.000	29.892	

3.10.1.1 Graph

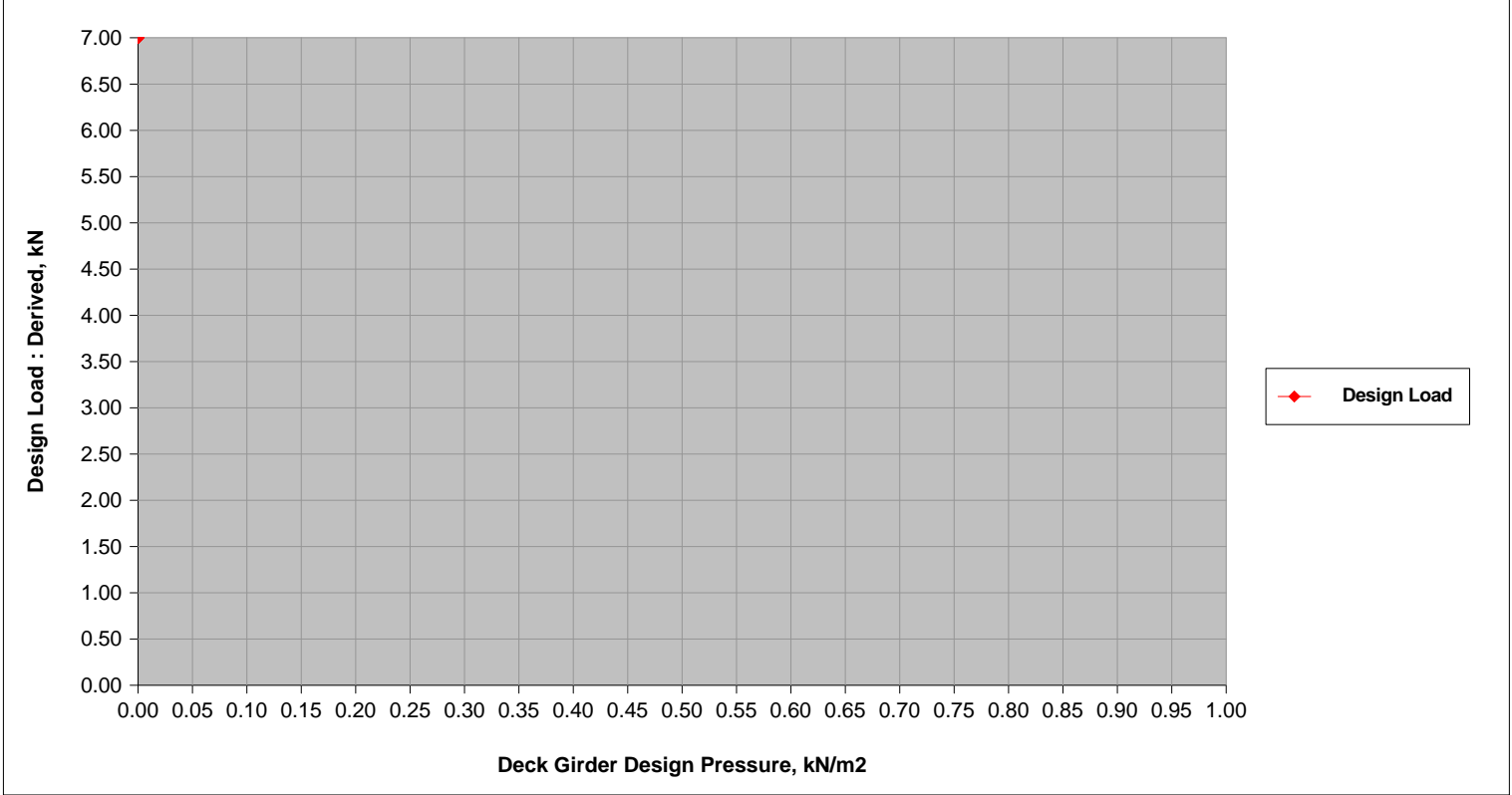


3.10.1.1.2 Table: Graph

Design Load	Cross-sectional Area
0.000	0.000
11.111	0.812
22.222	1.625
33.333	2.437
44.444	3.250
55.556	4.062

66.667	4.875
77.778	5.687
88.889	6.499
100.000	7.312

3.10.1.3 Graph #1



3.10.1.3.4 Table: Graph #1

Deck Girder Design Pressure, kN/m2	Design Load
0.000	7.000
0.000	7.000
0.000	7.000
0.000	7.000
0.000	7.000
0.000	7.000
0.000	7.000
0.000	7.000
0.000	7.000
0.000	7.000

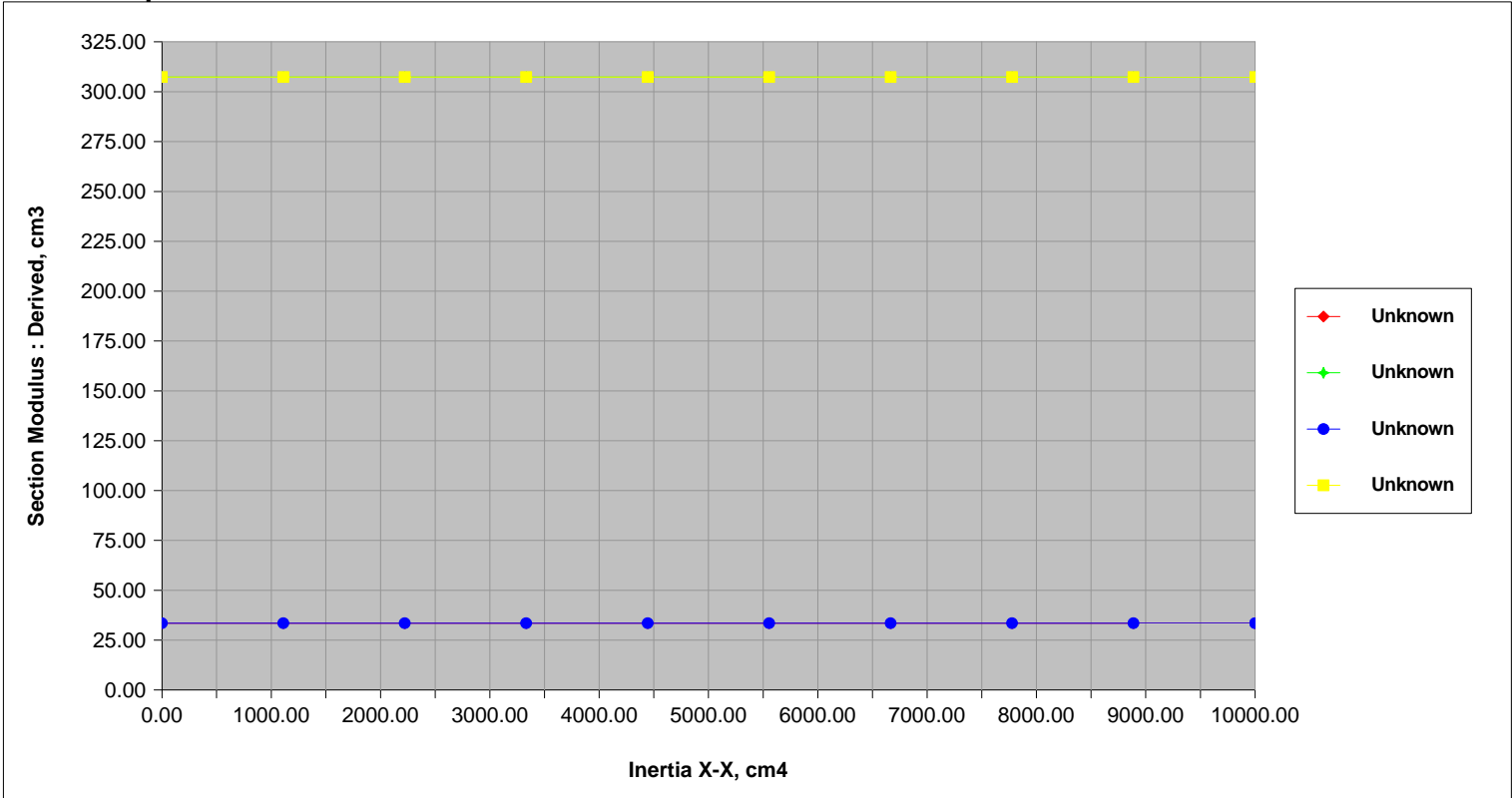
4 Profiles

4.1 Steel Profiles

4.1.1 Flat Bar (Fe):100x10

Property	Units	Entered	Derived	Required
Section Modulus X-X	cm3	0.000	16.667	
Inertia X-X	cm4	0.000	83.333	
Web Area	cm2	0.000	10.000	
Inertia Y-Y	cm4	0.000	0.833	
Section Modulus Y-Y	cm3	0.000	1.667	
Web Depth	mm	100.000		
Web Thickness	mm	10.000		5.556
Total Area	cm2	0.000	10.000	
Product Moment of Area	cm4	0.000	0.000	

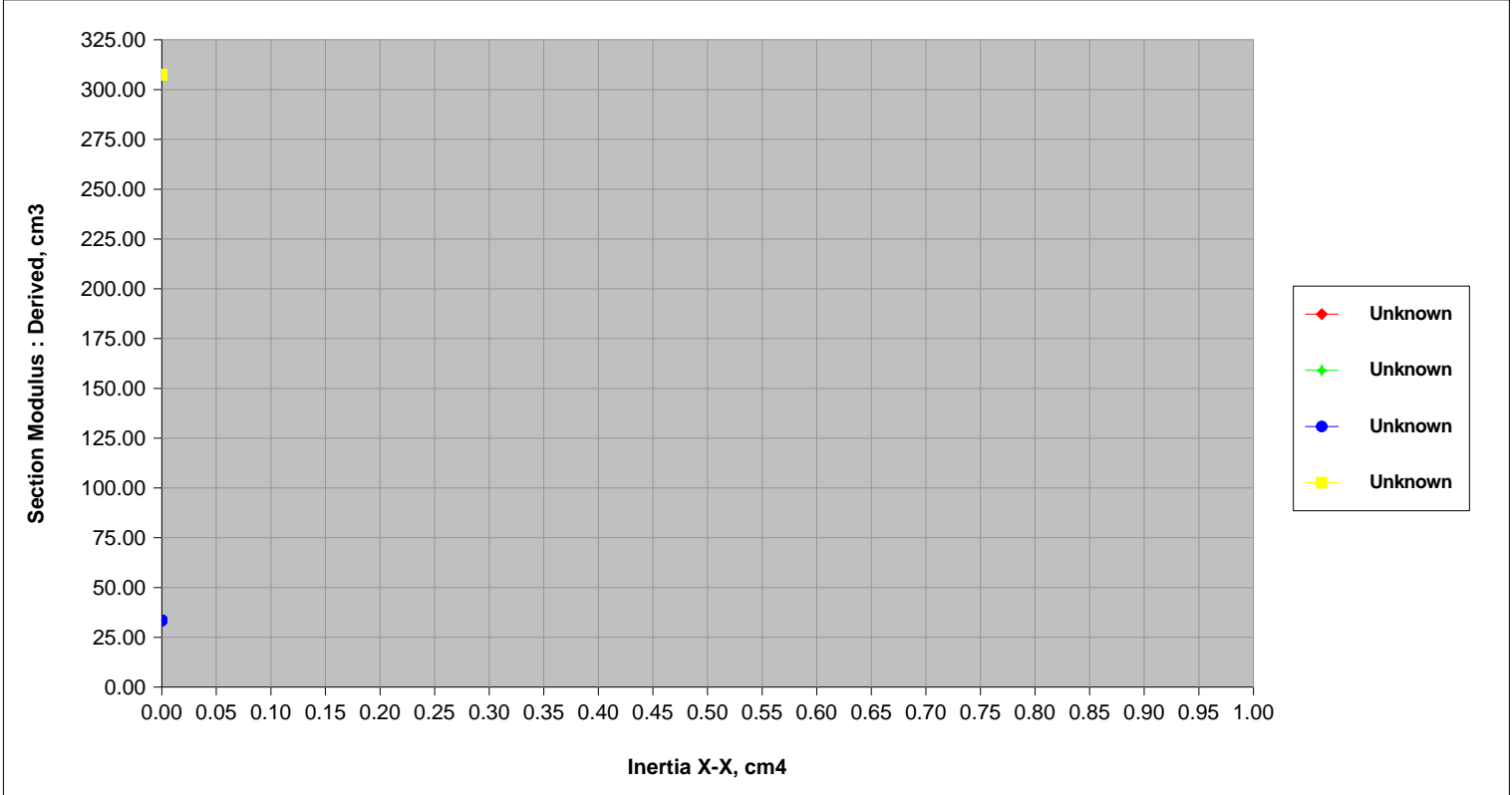
4.1.1.1 Graph



4.1.1.1.2 Table: Graph

Inertia X-X	Unknown		Unknown		Unknown
0.000		33.553		307.382	33.553 307.382
1111.111		33.553		307.382	33.553 307.382
2222.222		33.553		307.382	33.553 307.382
3333.333		33.553		307.382	33.553 307.382
4444.444		33.553		307.382	33.553 307.382
5555.556		33.553		307.382	33.553 307.382
6666.667		33.553		307.382	33.553 307.382
7777.778		33.553		307.382	33.553 307.382
8888.889		33.553		307.382	33.553 307.382
10000.000		33.553		307.382	33.553 307.382

4.1.1.3 Graph #1



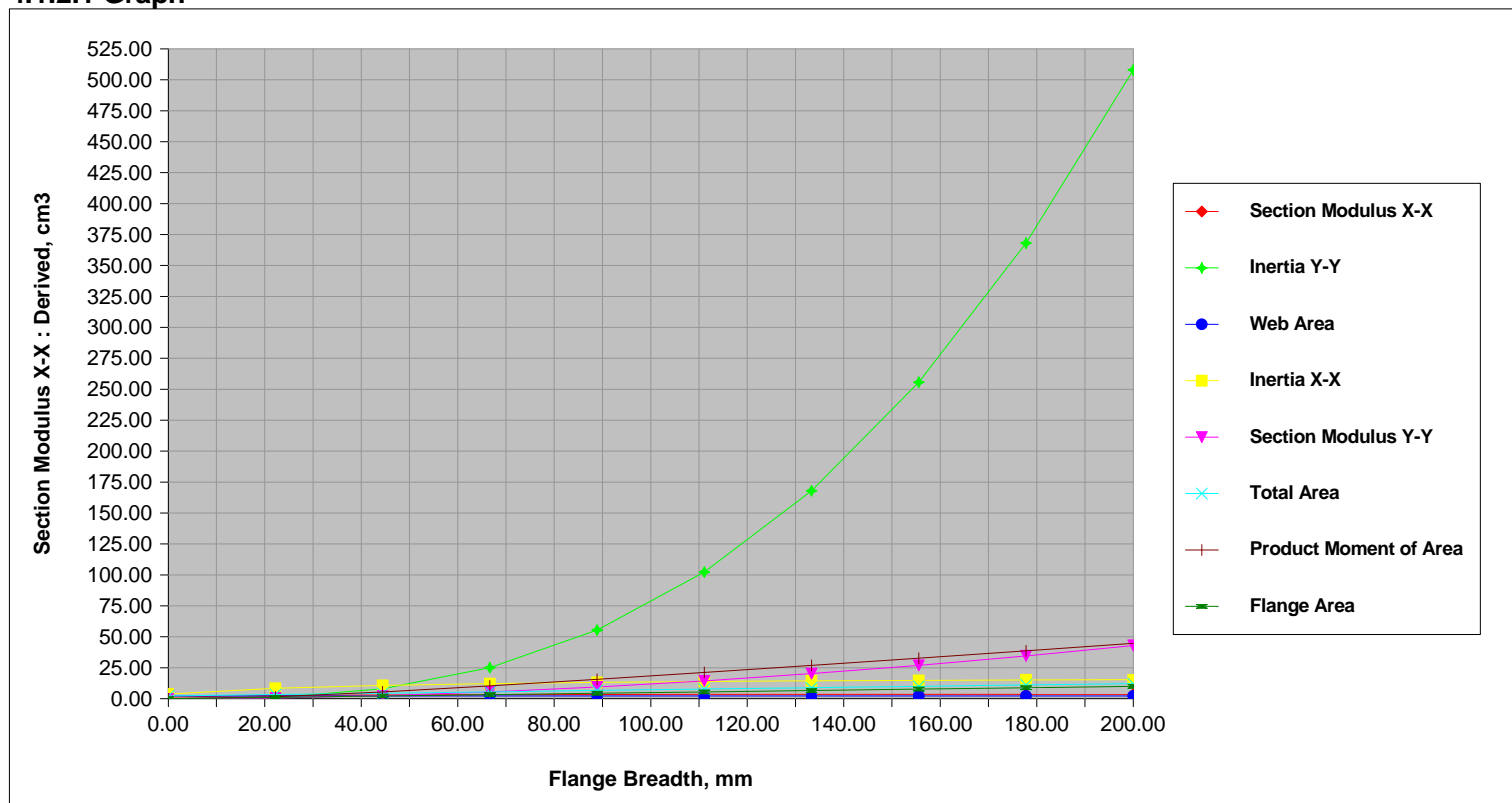
4.1.1.3.4 Table: Graph #1

Inertia X-X	Unknown	Unknown	Unknown	Unknown
0.000	33.553	307.382	33.553	307.382
0.000	33.553	307.382	33.553	307.382
0.000	33.553	307.382	33.553	307.382
0.000	33.553	307.382	33.553	307.382
0.000	33.553	307.382	33.553	307.382
0.000	33.553	307.382	33.553	307.382
0.000	33.553	307.382	33.553	307.382
0.000	33.553	307.382	33.553	307.382
0.000	33.553	307.382	33.553	307.382
0.000	33.553	307.382	33.553	307.382

4.1.2 Built L (Fe):50x50x5

Property	Units	Entered	Derived	Required
Flange Offset	mm	0.000	2.500	
Section Modulus X-X	cm3	0.000	3.155	
Inertia X-X	cm4	0.000	11.250	
Web Area	cm2	0.000	2.250	
Inertia Y-Y	cm4	0.000	11.250	
Section Modulus Y-Y	cm3	0.000	3.155	
Web Depth	mm	45.000		
Web Thickness	mm	5.000		2.500
Total Area	cm2	0.000	4.750	
Product Moment of Area	cm4	0.000	6.661	
Flange Thickness	mm	5.000		
Flange Breadth	mm	50.000		
Flange Area	cm2	0.000	2.500	

4.1.2.1 Graph



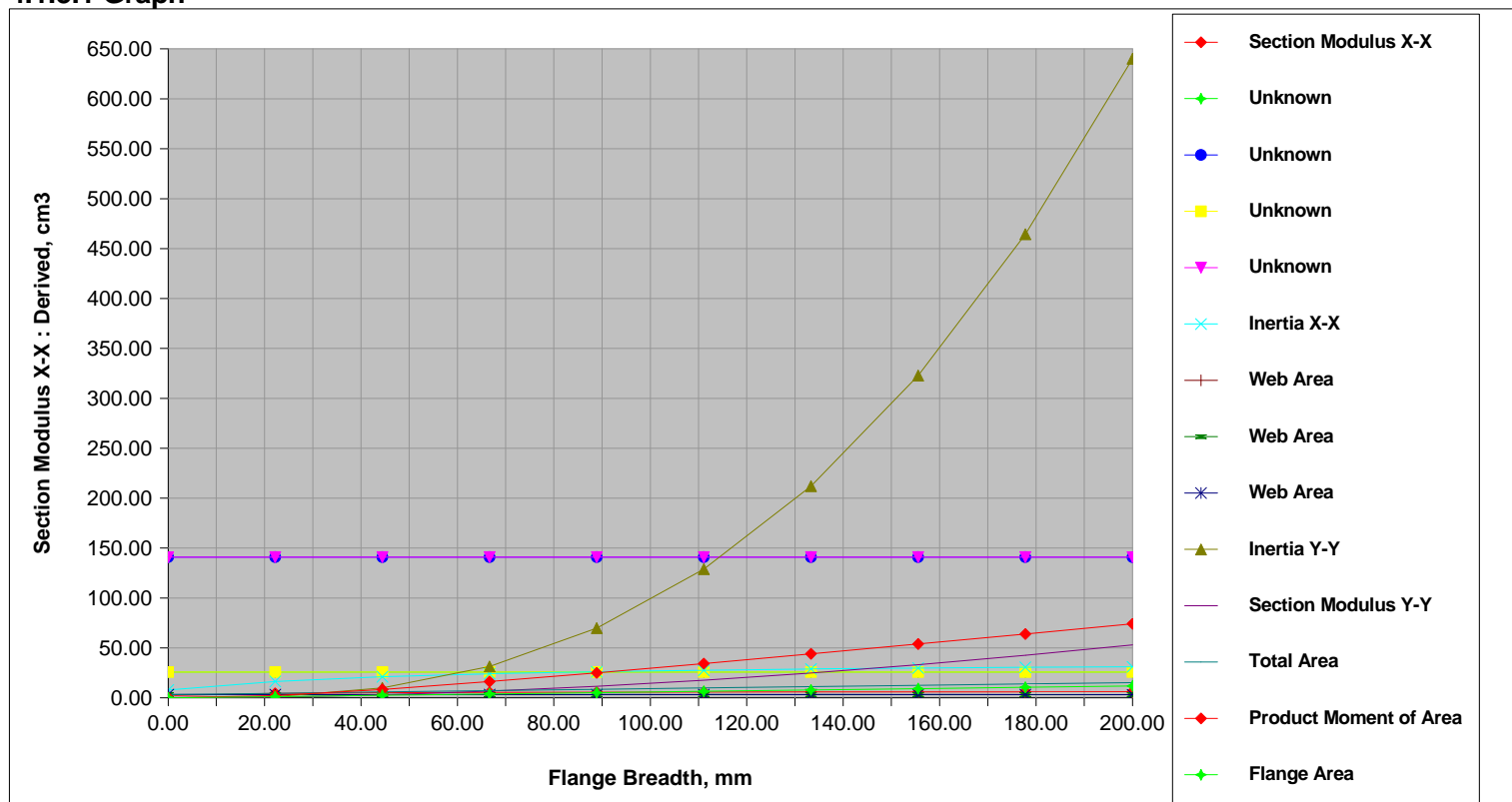
4.1.2.1.2 Table: Graph

Flange Breadth	Section Modulus X-X	Inertia Y-Y	Web Area	Inertia X-X	Section Modulus Y-Y	Total Area	Product Moment of Area
0.000	1.381	0.047	2.250	3.797	0.188	2.250	0.000
22.222	2.753	1.056	2.250	8.469	0.626	3.361	1.601
44.444	3.101	8.054	2.250	10.831	2.505	4.472	5.512
66.667	3.276	25.163	2.250	12.262	5.499	5.583	10.354
88.889	3.383	55.591	2.250	13.226	9.496	6.694	15.664
111.111	3.455	102.281	2.250	13.922	14.436	7.806	21.241
133.333	3.508	168.076	2.250	14.450	20.285	8.917	26.986
155.556	3.549	255.776	2.250	14.866	27.018	10.028	32.843
177.778	3.582	368.157	2.250	15.204	34.621	11.139	38.778
200.000	3.609	507.985	2.250	15.485	43.083	12.250	44.770

4.1.3 Built L (Fe):60x60x6

Property	Units	Entered	Derived	Required
Flange Offset	mm	0.000	3.000	
Section Modulus X-X	cm3	0.000	5.452	
Inertia X-X	cm4	0.000	23.329	
Web Area	cm2	0.000	3.240	
Inertia Y-Y	cm4	0.000	23.329	
Section Modulus Y-Y	cm3	0.000	5.452	
Web Depth	mm	54.000		
Web Thickness	mm	6.000		2.500
Total Area	cm2	0.000	6.840	
Product Moment of Area	cm4	0.000	13.813	
Flange Thickness	mm	6.000		
Flange Breadth	mm	60.000		
Flange Area	cm2	0.000	3.600	

4.1.3.1 Graph



4.1.3.1.2 Table: Graph

Flange Breadth	Section Modulus X-X	Unknown	Unknown	Unknown	Unknown	Inertia X-X	Web Area	Web Area
0.000	2.386	25.875	141.014	25.875	141.014	7.873	3.240	
22.222	4.592	25.875	141.014	25.875	141.014	16.415	3.240	
44.444	5.209	25.875	141.014	25.875	141.014	21.118	3.240	
66.667	5.532	25.875	141.014	25.875	141.014	24.104	3.240	
88.889	5.732	25.875	141.014	25.875	141.014	26.173	3.240	
111.111	5.869	25.875	141.014	25.875	141.014	27.696	3.240	
133.333	5.970	25.875	141.014	25.875	141.014	28.868	3.240	
155.556	6.048	25.875	141.014	25.875	141.014	29.799	3.240	
177.778	6.111	25.875	141.014	25.875	141.014	30.559	3.240	
200.000	6.162	25.875	141.014	25.875	141.014	31.194	3.240	

4.1.4 Built L (Fe):70x70x7

Property	Units	Entered	Derived	Required
Flange Offset	mm	0.000	3.500	
Section Modulus X-X	cm3	0.000	8.657	
Inertia X-X	cm4	0.000	43.219	
Web Area	cm2	0.000	4.410	
Inertia Y-Y	cm4	0.000	43.219	
Section Modulus Y-Y	cm3	0.000	8.657	
Web Depth	mm	63.000		
Web Thickness	mm	7.000		2.500
Total Area	cm2	0.000	9.310	
Product Moment of Area	cm4	0.000	25.590	
Flange Thickness	mm	7.000		
Flange Breadth	mm	70.000		
Flange Area	cm2	0.000	4.900	

4.1.5 Built L (Fe):80x80x8

Property	Units	Entered	Derived	Required
Flange Offset	mm	0.000	4.000	
Section Modulus X-X	cm3	0.000	12.923	
Inertia X-X	cm4	0.000	73.730	
Web Area	cm2	0.000	5.760	

Property	Units	Entered	Derived	Required
Inertia Y-Y	cm4	0.000	73.730	
Section Modulus Y-Y	cm3	0.000	12.923	
Web Depth	mm	72.000		
Web Thickness	mm	8.000		2.500
Total Area	cm2	0.000	12.160	
Product Moment of Area	cm4	0.000	43.655	
Flange Thickness	mm	8.000		
Flange Breadth	mm	80.000		
Flange Area	cm2	0.000	6.400	

4.1.6 Built L (Fe):90x90x8

Property	Units	Entered	Derived	Required
Flange Offset	mm	0.000	4.000	
Section Modulus X-X	cm3	0.000	16.168	
Inertia X-X	cm4	0.000	103.350	
Web Area	cm2	0.000	6.480	
Inertia Y-Y	cm4	0.000	106.277	
Section Modulus Y-Y	cm3	0.000	16.497	
Web Depth	mm	81.000		
Web Thickness	mm	8.000		2.500
Total Area	cm2	0.000	13.680	
Product Moment of Area	cm4	0.000	62.225	
Flange Thickness	mm	8.000		
Flange Breadth	mm	90.000		
Flange Area	cm2	0.000	7.200	

4.1.7 Built L (Fe):100x100x10

Property	Units	Entered	Derived	Required
Flange Offset	mm	0.000	5.000	
Section Modulus X-X	cm3	0.000	25.240	
Inertia X-X	cm4	0.000	180.004	
Web Area	cm2	0.000	9.000	
Inertia Y-Y	cm4	0.000	180.004	
Section Modulus Y-Y	cm3	0.000	25.240	
Web Depth	mm	90.000		
Web Thickness	mm	10.000		2.500
Total Area	cm2	0.000	19.000	
Product Moment of Area	cm4	0.000	106.579	
Flange Thickness	mm	10.000		
Flange Breadth	mm	100.000		
Flange Area	cm2	0.000	10.000	

4.1.8 Built L (Fe):110x110x10

Property	Units	Entered	Derived	Required
Flange Offset	mm	0.000	50.000	
Section Modulus X-X	cm3	0.000	136.156	
Inertia X-X	cm4	0.000	2036.818	
Web Area	cm2	0.000	100.000	
Inertia Y-Y	cm4	0.000	1034.926	
Section Modulus Y-Y	cm3	0.000	227.254	
Web Depth	mm	100.000		
Web Thickness	mm	100.000		2.500
Total Area	cm2	0.000	111.000	
Product Moment of Area	cm4	0.000	-468.243	
Flange Thickness	mm	110.000		
Flange Breadth	mm	10.000		
Flange Area	cm2	0.000	11.000	

4.1.9 Built L (Fe):110X110X11

Property	Units	Entered	Derived	Required
Flange Offset	mm	0.000	5.500	
Section Modulus X-X	cm3	0.000	33.595	
Inertia X-X	cm4	0.000	263.544	
Web Area	cm2	0.000	10.890	
Inertia Y-Y	cm4	0.000	263.544	
Section Modulus Y-Y	cm3	0.000	33.595	
Web Depth	mm	99.000		
Web Thickness	mm	11.000		2.500
Total Area	cm2	0.000	22.990	
Product Moment of Area	cm4	0.000	156.042	
Flange Thickness	mm	11.000		
Flange Breadth	mm	110.000		
Flange Area	cm2	0.000	12.100	

4.1.10 Built L (Fe):120x120x12

Property	Units	Entered	Derived	Required
Flange Offset	mm	0.000	6.000	
Section Modulus X-X	cm3	0.000	43.616	
Inertia X-X	cm4	0.000	373.257	
Web Area	cm2	0.000	12.960	
Inertia Y-Y	cm4	0.000	373.257	
Section Modulus Y-Y	cm3	0.000	43.616	
Web Depth	mm	108.000		
Web Thickness	mm	12.000		2.500
Total Area	cm2	0.000	27.360	
Product Moment of Area	cm4	0.000	221.002	
Flange Thickness	mm	12.000		
Flange Breadth	mm	120.000		
Flange Area	cm2	0.000	14.400	

4.1.11 Built L (Fe):130x130x13

Property	Units	Entered	Derived	Required
Flange Offset	mm	0.000	6.500	
Section Modulus X-X	cm3	0.000	55.453	
Inertia X-X	cm4	0.000	514.111	
Web Area	cm2	0.000	15.210	
Inertia Y-Y	cm4	0.000	514.111	
Section Modulus Y-Y	cm3	0.000	55.453	
Web Depth	mm	117.000		
Web Thickness	mm	13.000		2.500
Total Area	cm2	0.000	32.110	
Product Moment of Area	cm4	0.000	304.400	
Flange Thickness	mm	13.000		
Flange Breadth	mm	130.000		
Flange Area	cm2	0.000	16.900	

4.1.12 Built L (Fe):130x130x15

Property	Units	Entered	Derived	Required
Flange Offset	mm	0.000	7.500	
Section Modulus X-X	cm3	0.000	150.063	
Inertia X-X	cm4	0.000	1838.266	
Web Area	cm2	0.000	17.250	
Inertia Y-Y	cm4	0.000	6.891	
Section Modulus Y-Y	cm3	0.000	9.188	
Web Depth	mm	115.000		
Web Thickness	mm	15.000		2.500
Total Area	cm2	0.000	36.750	
Product Moment of Area	cm4	0.000	0.000	
Flange Thickness	mm	130.000		
Flange Breadth	mm	15.000		
Flange Area	cm2	0.000	19.500	

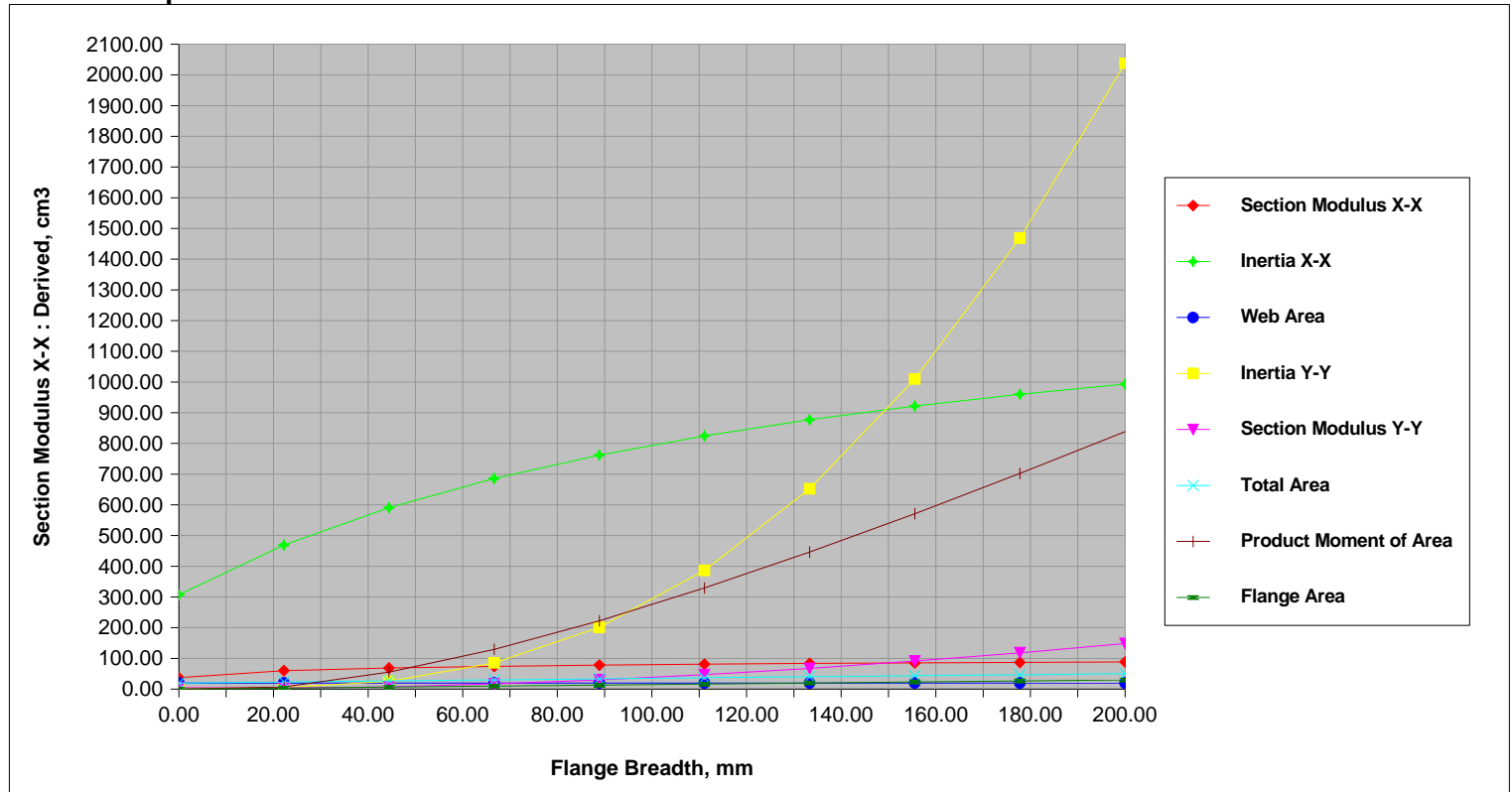
4.1.13 Built L (Fe):140X140X14

Property	Units	Entered	Derived	Required
Flange Offset	mm	0.000	7.000	
Section Modulus X-X	cm3	0.000	71.201	
Inertia X-X	cm4	0.000	719.767	
Web Area	cm2	0.000	17.920	
Inertia Y-Y	cm4	0.000	694.606	
Section Modulus Y-Y	cm3	0.000	69.398	
Web Depth	mm	128.000		
Web Thickness	mm	14.000		2.500
Total Area	cm2	0.000	37.520	
Product Moment of Area	cm4	0.000	418.726	
Flange Thickness	mm	14.000		
Flange Breadth	mm	140.000		
Flange Area	cm2	0.000	19.600	

4.1.14 Built L (Fe):150x150x15

Property	Units	Entered	Derived	Required
Flange Offset	mm	0.000	7.500	
Section Modulus X-X	cm3	0.000	85.187	
Inertia X-X	cm4	0.000	911.272	
Web Area	cm2	0.000	20.250	
Inertia Y-Y	cm4	0.000	911.272	
Section Modulus Y-Y	cm3	0.000	85.187	
Web Depth	mm	135.000		
Web Thickness	mm	15.000		2.500
Total Area	cm2	0.000	42.750	
Product Moment of Area	cm4	0.000	539.556	
Flange Thickness	mm	15.000		
Flange Breadth	mm	150.000		
Flange Area	cm2	0.000	22.500	

4.1.14.1 Graph



4.1.14.1.2 Table: Graph

Flange Breadth	Section Modulus X-X	Inertia X-X	Web Area	Inertia Y-Y	Section Modulus Y-Y	Total Area	Product Moment of Area
0.000	37.278	307.547	20.250	3.797	5.063	20.250	0.000

22.222	60.072	469.170	20.250	5.542	3.899	23.583	7.752
44.444	68.651	590.918	20.250	25.642	7.701	26.917	55.379
66.667	74.325	685.971	20.250	85.508	16.890	30.250	129.700
88.889	78.362	762.280	20.250	201.322	30.174	33.583	222.767
111.111	81.385	824.921	20.250	386.389	47.169	36.917	329.501
133.333	83.737	877.291	20.250	652.337	67.646	40.250	446.506
155.556	85.622	921.745	20.250	1009.753	91.438	43.583	571.427
177.778	87.168	959.971	20.250	1468.553	118.415	46.917	702.575
200.000	88.461	993.209	20.250	2038.209	148.475	50.250	838.713

4.1.15 Built L (Fe):160x160x12

Property	Units	Entered	Derived	Required
Flange Offset	mm	0.000	6.000	
Section Modulus X-X	cm3	0.000	79.349	
Inertia X-X	cm4	0.000	916.946	
Web Area	cm2	0.000	17.760	
Inertia Y-Y	cm4	0.000	916.946	
Section Modulus Y-Y	cm3	0.000	79.349	
Web Depth	mm	148.000		
Web Thickness	mm	12.000		2.500
Total Area	cm2	0.000	36.960	
Product Moment of Area	cm4	0.000	546.178	
Flange Thickness	mm	12.000		
Flange Breadth	mm	160.000		
Flange Area	cm2	0.000	19.200	

4.1.16 Built L (Fe):160x160x16

Property	Units	Entered	Derived	Required
Flange Offset	mm	0.000	8.000	
Section Modulus X-X	cm3	0.000	103.385	
Inertia X-X	cm4	0.000	1179.677	
Web Area	cm2	0.000	23.040	
Inertia Y-Y	cm4	0.000	1179.677	
Section Modulus Y-Y	cm3	0.000	103.385	
Web Depth	mm	144.000		
Web Thickness	mm	16.000		2.500
Total Area	cm2	0.000	48.640	
Product Moment of Area	cm4	0.000	698.476	
Flange Thickness	mm	16.000		
Flange Breadth	mm	160.000		
Flange Area	cm2	0.000	25.600	

4.1.17 Built L (Fe):180x180x16

Property	Units	Entered	Derived	Required
Flange Offset	mm	0.000	8.000	
Section Modulus X-X	cm3	0.000	132.185	
Inertia X-X	cm4	0.000	1706.419	
Web Area	cm2	0.000	26.240	
Inertia Y-Y	cm4	0.000	1706.419	
Section Modulus Y-Y	cm3	0.000	132.185	
Web Depth	mm	164.000		
Web Thickness	mm	16.000		2.523
Total Area	cm2	0.000	55.040	
Product Moment of Area	cm4	0.000	1013.291	
Flange Thickness	mm	16.000		
Flange Breadth	mm	180.000		
Flange Area	cm2	0.000	28.800	

4.1.18 Built T (Fe):140x8x110x8

Property	Units	Entered	Derived	Required
Section Modulus X-X	cm3	0.000	44.195	
Inertia X-X	cm4	0.000	453.260	
Web Area	cm2	0.000	11.200	

Property	Units	Entered	Derived	Required
Inertia Y-Y	cm4	0.000	89.331	
Section Modulus Y-Y	cm3	0.000	16.242	
Web Depth	mm	140.000		
Web Thickness	mm	8.000		2.500
Total Area	cm2	0.000	20.000	
Product Moment of Area	cm4	0.000	0.000	
Flange Thickness	mm	8.000		
Flange Breadth	mm	110.000		
Flange Area	cm2	0.000	8.800	

4.1.19 Built T (Fe):200x10x150x10

Property	Units	Entered	Derived	Required
Section Modulus X-X	cm3	0.000	111.236	
Inertia X-X	cm4	0.000	1612.917	
Web Area	cm2	0.000	20.000	
Inertia Y-Y	cm4	0.000	282.917	
Section Modulus Y-Y	cm3	0.000	37.722	
Web Depth	mm	200.000		
Web Thickness	mm	10.000		3.077
Total Area	cm2	0.000	35.000	
Product Moment of Area	cm4	0.000	0.000	
Flange Thickness	mm	10.000		
Flange Breadth	mm	150.000		
Flange Area	cm2	0.000	15.000	

4.1.20 Built T (Fe):200x8x100x10

Property	Units	Entered	Derived	Required
Section Modulus X-X	cm3	0.000	86.379	
Inertia X-X	cm4	0.000	1212.628	
Web Area	cm2	0.000	16.000	
Inertia Y-Y	cm4	0.000	84.187	
Section Modulus Y-Y	cm3	0.000	16.837	
Web Depth	mm	200.000		
Web Thickness	mm	8.000		3.077
Total Area	cm2	0.000	26.000	
Product Moment of Area	cm4	0.000	0.000	
Flange Thickness	mm	10.000		
Flange Breadth	mm	100.000		
Flange Area	cm2	0.000	10.000	

4.1.21 Built T (Fe):225x10x230x12

Property	Units	Entered	Derived	Required
Section Modulus X-X	cm3	0.000	360.814	
Inertia X-X	cm4	0.000	8581.214	
Web Area	cm2	0.000	22.500	
Inertia Y-Y	cm4	0.000	5.187	
Section Modulus Y-Y	cm3	0.000	8.645	
Web Depth	mm	225.000		
Web Thickness	mm	10.000		3.462
Total Area	cm2	0.000	50.100	
Product Moment of Area	cm4	0.000	0.000	
Flange Thickness	mm	230.000		
Flange Breadth	mm	12.000		
Flange Area	cm2	0.000	27.600	

4.1.22 Built T (Fe):750x7x100x7

Property	Units	Entered	Derived	Required
Section Modulus X-X	cm3	0.000	698.962	
Inertia X-X	cm4	0.000	29772.422	
Web Area	cm2	0.000	45.000	
Inertia Y-Y	cm4	0.000	59.683	
Section Modulus Y-Y	cm3	0.000	11.937	

Property	Units	Entered	Derived	Required
Web Depth	mm	750.000		
Web Thickness	mm	6.000		11.538
Total Area	cm2	0.000	52.000	
Product Moment of Area	cm4	0.000	0.000	
Flange Thickness	mm	7.000		
Flange Breadth	mm	100.000		
Flange Area	cm2	0.000	7.000	

4.1.23 Flat Bar (Fe):70X7

Property	Units	Entered	Derived	Required
Section Modulus X-X	cm3	0.000	5.717	
Inertia X-X	cm4	0.000	20.008	
Web Area	cm2	0.000	4.900	
Inertia Y-Y	cm4	0.000	0.200	
Section Modulus Y-Y	cm3	0.000	0.572	
Web Depth	mm	70.000		
Web Thickness	mm	7.000		3.889
Total Area	cm2	0.000	4.900	
Product Moment of Area	cm4	0.000	0.000	

4.1.24 Flat Bar (Fe):80X8

Property	Units	Entered	Derived	Required
Section Modulus X-X	cm3	0.000	8.533	
Inertia X-X	cm4	0.000	34.133	
Web Area	cm2	0.000	6.400	
Inertia Y-Y	cm4	0.000	0.341	
Section Modulus Y-Y	cm3	0.000	0.853	
Web Depth	mm	80.000		
Web Thickness	mm	8.000		4.444
Total Area	cm2	0.000	6.400	
Product Moment of Area	cm4	0.000	0.000	

4.1.25 Flat Bar (Fe):150x9

Property	Units	Entered	Derived	Required
Section Modulus X-X	cm3	0.000	33.750	
Inertia X-X	cm4	0.000	253.125	
Web Area	cm2	0.000	13.500	
Inertia Y-Y	cm4	0.000	0.911	
Section Modulus Y-Y	cm3	0.000	2.025	
Web Depth	mm	150.000		
Web Thickness	mm	9.000		8.333
Total Area	cm2	0.000	13.500	
Product Moment of Area	cm4	0.000	0.000	

4.1.26 Flat Bar (Fe):135x9

Property	Units	Entered	Derived	Required
Section Modulus X-X	cm3	0.000	27.338	
Inertia X-X	cm4	0.000	184.528	
Web Area	cm2	0.000	12.150	
Inertia Y-Y	cm4	0.000	0.820	
Section Modulus Y-Y	cm3	0.000	1.823	
Web Depth	mm	135.000		
Web Thickness	mm	9.000		7.500
Total Area	cm2	0.000	12.150	
Product Moment of Area	cm4	0.000	0.000	

4.1.27 Built T (Fe):175x10x100x10

Property	Units	Entered	Derived	Required
Section Modulus X-X	cm3	0.000	126.042	
Inertia X-X	cm4	0.000	1733.073	
Web Area	cm2	0.000	17.500	
Inertia Y-Y	cm4	0.000	2.292	
Section Modulus Y-Y	cm3	0.000	4.583	

Property	Units	Entered	Derived	Required
Web Depth	mm	175.000		
Web Thickness	mm	10.000		2.692
Total Area	cm2	0.000	27.500	
Product Moment of Area	cm4	0.000	0.000	
Flange Thickness	mm	100.000		
Flange Breadth	mm	10.000		
Flange Area	cm2	0.000	10.000	

4.1.28 Built T (Fe)224x8x200x12

Property	Units	Entered	Derived	Required
Section Modulus X-X	cm3	0.000	121.449	
Inertia X-X	cm4	0.000	2180.714	
Web Area	cm2	0.000	17.920	
Inertia Y-Y	cm4	0.000	800.956	
Section Modulus Y-Y	cm3	0.000	80.096	
Web Depth	mm	224.000		
Web Thickness	mm	8.000		3.446
Total Area	cm2	0.000	41.920	
Product Moment of Area	cm4	0.000	0.000	
Flange Thickness	mm	12.000		
Flange Breadth	mm	200.000		
Flange Area	cm2	0.000	24.000	

4.1.29 Built T (Fe):200x10x100x10

Property	Units	Entered	Derived	Required
Section Modulus X-X	cm3	0.000	103.889	
Inertia X-X	cm4	0.000	1402.500	
Web Area	cm2	0.000	20.000	
Inertia Y-Y	cm4	0.000	85.000	
Section Modulus Y-Y	cm3	0.000	17.000	
Web Depth	mm	200.000		
Web Thickness	mm	10.000		3.077
Total Area	cm2	0.000	30.000	
Product Moment of Area	cm4	0.000	0.000	
Flange Thickness	mm	10.000		
Flange Breadth	mm	100.000		
Flange Area	cm2	0.000	10.000	

4.1.30 Flat Bar (Fe)

Property	Units	Entered	Derived	Required
Section Modulus X-X	cm3	0.000	39.200	
Inertia X-X	cm4	0.000	274.400	
Web Area	cm2	0.000	16.800	
Inertia Y-Y	cm4	0.000	2.016	
Section Modulus Y-Y	cm3	0.000	3.360	
Web Depth	mm	140.000		
Web Thickness	mm	12.000		7.778
Total Area	cm2	0.000	16.800	
Product Moment of Area	cm4	0.000	0.000	

4.1.31 Built T (Fe):700x7x100x10

Property	Units	Entered	Derived	Required
Section Modulus X-X	cm3	0.000	798.949	
Inertia X-X	cm4	0.000	33379.802	
Web Area	cm2	0.000	49.000	
Inertia Y-Y	cm4	0.000	2.834	
Section Modulus Y-Y	cm3	0.000	5.668	
Web Depth	mm	700.000		
Web Thickness	mm	7.000		10.769
Total Area	cm2	0.000	59.000	
Product Moment of Area	cm4	0.000	0.000	
Flange Thickness	mm	100.000		

Property	Units	Entered	Derived	Required
Flange Breadth	mm	10.000		
Flange Area	cm2	0.000	10.000	

4.1.32 Flat Bar (Fe):150x10

Property	Units	Entered	Derived	Required
Section Modulus X-X	cm3	0.000	37.500	
Inertia X-X	cm4	0.000	281.250	
Web Area	cm2	0.000	15.000	
Inertia Y-Y	cm4	0.000	1.250	
Section Modulus Y-Y	cm3	0.000	2.500	
Web Depth	mm	150.000		
Web Thickness	mm	10.000		8.333
Total Area	cm2	0.000	15.000	
Product Moment of Area	cm4	0.000	0.000	

4.1.33 Flat Bar (Fe):120X10

Property	Units	Entered	Derived	Required
Section Modulus X-X	cm3	0.000	24.000	
Inertia X-X	cm4	0.000	144.000	
Web Area	cm2	0.000	12.000	
Inertia Y-Y	cm4	0.000	1.000	
Section Modulus Y-Y	cm3	0.000	2.000	
Web Depth	mm	120.000		
Web Thickness	mm	10.000		6.667
Total Area	cm2	0.000	12.000	
Product Moment of Area	cm4	0.000	0.000	

4.1.34 Built T (Fe):230x10x250x14

Property	Units	Entered	Derived	Required
Section Modulus X-X	cm3	0.000	163.579	
Inertia X-X	cm4	0.000	3085.430	
Web Area	cm2	0.000	23.000	
Inertia Y-Y	cm4	0.000	1824.833	
Section Modulus Y-Y	cm3	0.000	145.987	
Web Depth	mm	230.000		
Web Thickness	mm	10.000		3.538
Total Area	cm2	0.000	58.000	
Product Moment of Area	cm4	0.000	0.000	
Flange Thickness	mm	14.000		
Flange Breadth	mm	250.000		
Flange Area	cm2	0.000	35.000	

4.1.35 Built T (Fe):300x8x100x8

Property	Units	Entered	Derived	Required
Section Modulus X-X	cm3	0.000	171.002	
Inertia X-X	cm4	0.000	3223.387	
Web Area	cm2	0.000	24.000	
Inertia Y-Y	cm4	0.000	67.947	
Section Modulus Y-Y	cm3	0.000	13.589	
Web Depth	mm	300.000		
Web Thickness	mm	8.000		4.615
Total Area	cm2	0.000	32.000	
Product Moment of Area	cm4	0.000	0.000	
Flange Thickness	mm	8.000		
Flange Breadth	mm	100.000		
Flange Area	cm2	0.000	8.000	

4.1.36 Built T (Fe):150x10x100x10

Property	Units	Entered	Derived	Required
Section Modulus X-X	cm3	0.000	62.251	
Inertia X-X	cm4	0.000	666.083	
Web Area	cm2	0.000	15.000	
Inertia Y-Y	cm4	0.000	84.583	

Property	Units	Entered	Derived	Required
Section Modulus Y-Y	cm3	0.000	16.917	
Web Depth	mm	150.000		
Web Thickness	mm	10.000		2.500
Total Area	cm2	0.000	25.000	
Product Moment of Area	cm4	0.000	0.000	
Flange Thickness	mm	10.000		
Flange Breadth	mm	100.000		
Flange Area	cm2	0.000	10.000	

4.1.37 Built T (Fe):200X15+200X16

Property	Units	Entered	Derived	Required
Section Modulus X-X	cm3	0.000	180.611	
Inertia X-X	cm4	0.000	2812.865	
Web Area	cm2	0.000	30.000	
Inertia Y-Y	cm4	0.000	1072.292	
Section Modulus Y-Y	cm3	0.000	107.229	
Web Depth	mm	200.000		
Web Thickness	mm	15.000		3.077
Total Area	cm2	0.000	62.000	
Product Moment of Area	cm4	0.000	0.000	
Flange Thickness	mm	16.000		
Flange Breadth	mm	200.000		
Flange Area	cm2	0.000	32.000	

4.1.38 Built T (Fe):140X8+120X8

Property	Units	Entered	Derived	Required
Section Modulus X-X	cm3	0.000	44.791	
Inertia X-X	cm4	0.000	466.512	
Web Area	cm2	0.000	11.200	
Inertia Y-Y	cm4	0.000	115.797	
Section Modulus Y-Y	cm3	0.000	19.300	
Web Depth	mm	140.000		
Web Thickness	mm	8.000		2.500
Total Area	cm2	0.000	20.800	
Product Moment of Area	cm4	0.000	0.000	
Flange Thickness	mm	8.000		
Flange Breadth	mm	120.000		
Flange Area	cm2	0.000	9.600	

4.1.39 Built L (Fe):140X8+110X8

Property	Units	Entered	Derived	Required
Flange Offset	mm	0.000	4.000	
Section Modulus X-X	cm3	0.000	83.333	
Inertia X-X	cm4	0.000	1041.667	
Web Area	cm2	0.000	11.200	
Inertia Y-Y	cm4	0.000	1.067	
Section Modulus Y-Y	cm3	0.000	2.667	
Web Depth	mm	140.000		
Web Thickness	mm	8.000		2.500
Total Area	cm2	0.000	20.000	
Product Moment of Area	cm4	0.000	0.000	
Flange Thickness	mm	110.000		
Flange Breadth	mm	8.000		
Flange Area	cm2	0.000	8.800	

4.1.40 Built L (Fe):120X8+120X8

Property	Units	Entered	Derived	Required
Flange Offset	mm	0.000	4.000	
Section Modulus X-X	cm3	0.000	76.800	
Inertia X-X	cm4	0.000	921.600	
Web Area	cm2	0.000	9.600	
Inertia Y-Y	cm4	0.000	1.024	

Property	Units	Entered	Derived	Required
Section Modulus Y-Y	cm3	0.000	2.560	
Web Depth	mm	120.000		
Web Thickness	mm	8.000		2.500
Total Area	cm2	0.000	19.200	
Product Moment of Area	cm4	0.000	0.000	
Flange Thickness	mm	120.000		
Flange Breadth	mm	8.000		
Flange Area	cm2	0.000	9.600	

4.1.41 Built L (Fe):130X130X9

Property	Units	Entered	Derived	Required
Flange Offset	mm	0.000	4.500	
Section Modulus X-X	cm3	0.000	101.400	
Inertia X-X	cm4	0.000	1318.200	
Web Area	cm2	0.000	11.700	
Inertia Y-Y	cm4	0.000	1.580	
Section Modulus Y-Y	cm3	0.000	3.510	
Web Depth	mm	130.000		
Web Thickness	mm	9.000		2.500
Total Area	cm2	0.000	23.400	
Product Moment of Area	cm4	0.000	0.000	
Flange Thickness	mm	130.000		
Flange Breadth	mm	9.000		
Flange Area	cm2	0.000	11.700	

4.1.42 Built L (Fe):140X12+130X12

Property	Units	Entered	Derived	Required
Flange Offset	mm	0.000	6.000	
Section Modulus X-X	cm3	0.000	145.800	
Inertia X-X	cm4	0.000	1968.300	
Web Area	cm2	0.000	16.800	
Inertia Y-Y	cm4	0.000	3.888	
Section Modulus Y-Y	cm3	0.000	6.480	
Web Depth	mm	140.000		
Web Thickness	mm	12.000		2.500
Total Area	cm2	0.000	32.400	
Product Moment of Area	cm4	0.000	0.000	
Flange Thickness	mm	130.000		
Flange Breadth	mm	12.000		
Flange Area	cm2	0.000	15.600	

4.1.43 Built L (Fe):60X7.5+50X7.5

Property	Units	Entered	Derived	Required
Flange Offset	mm	0.000	3.750	
Section Modulus X-X	cm3	0.000	15.125	
Inertia X-X	cm4	0.000	83.188	
Web Area	cm2	0.000	4.500	
Inertia Y-Y	cm4	0.000	0.387	
Section Modulus Y-Y	cm3	0.000	1.031	
Web Depth	mm	60.000		
Web Thickness	mm	7.500		2.500
Total Area	cm2	0.000	8.250	
Product Moment of Area	cm4	0.000	0.000	
Flange Thickness	mm	50.000		
Flange Breadth	mm	7.500		
Flange Area	cm2	0.000	3.750	

5 Materials

5.1 Steel Material

Property	Units	Entered
Yield Stress	N/mm2	235.000
Ultimate Tensile Strength	N/mm2	410.000
Modulus of Elasticity	N/mm2	206000.000
Steel Type		Mild

6 Machinery

6.1 Basic Machinery Data

Property	Units	Entered
Total Shaft Power	kW	0.000
Number of Shaftlines		0
Number of Engines per Shaft		0

6.2 Propulsion Trains

6.3 Auxiliary Machinery

7 Transverse Sections