NEGATIVE LOAD SPAN CHART FOR : PETERSEN BOX RIB SERIES BOX RIB 1 @ 12" X 24 GA. STEEL (w/ CLIP)						
Span, ft.	TWO EQUAL SPANS			THREE EQUAL SPANS		
	W (psf)	Re	Ri	W (psf)	Re	Ri
1.00	100.40	37.7	125.5	114.09	45.6	125.5
1.25	80.32	37.7	125.5	91.27	45.6	125.5
1.50	66.93	37.7	125.5	76.06	45.6	125.5
1.75	57.37	37.7	125.5	65.19	45.6	125.5
2.00	50.20	37.7	125.5	57.05	45.6	125.5
2.25	44.62	37.7	125.5	50.71	45.6	125.5
2.50	40.16	37.7	125.5	45.64	45.6	125.5
2.75	36.51	37.6	125.5	41.49	45.6	125.5
3.00	33.47	37.7	125.5	38.03	45.6	125.5
3.25	30.89	37.6	125.5	35.10	45.6	125.5
3.50	28.69	37.7	125.5	32.60	45.6	125.5
3.75	26.77	37.6	125.5	30.42	45.6	125.5
4.00	25.10	37.7	125.5	28.52	45.6	125.5

W = Allowable Uniform Wind Load, psf

Re = End Support Reaction, 125.5 #/ft. of panel

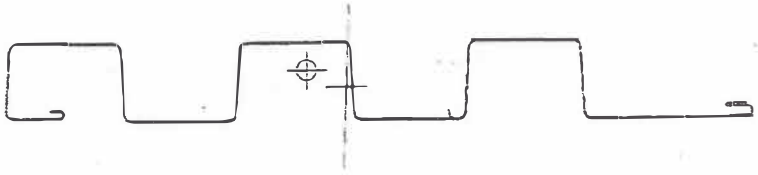
Ri = Intermediate Support Reaction, 125.5 #/ft. of panel

Deflection Limit = L/180

F_y = 40 ksi

I_{xx} = 0.1742 in^4

S_{xx} = 0.1913 in^3



PETERSEN BOX RIB-1 PANEL - 12" X 24 GA.
BOX RIB W/ CLIP
Rev. Date: 4/9/2020 1:36:20 PM
By: Thomas M. Shingler, PE
Printed: 4/9/2020 1:36:36 PM

Design Dynamics, Inc.
1333 W. McDermott Dr., Suite 150
Allen, Texas 75013
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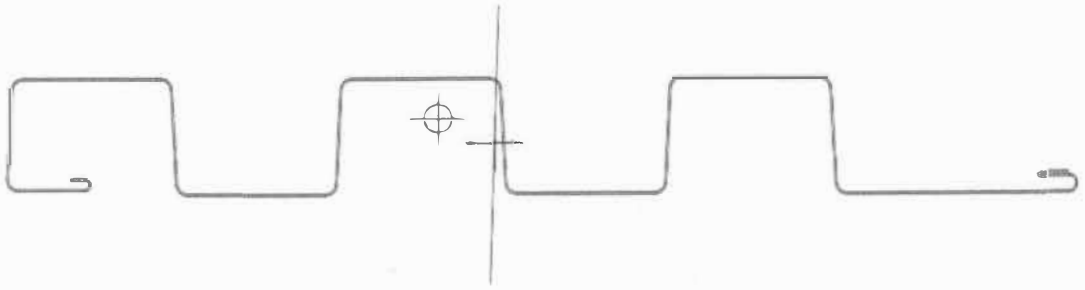
designdynamics04@aol.com

$(+)I_{xx}/ft = 0.1741\ in^4/ft$

$(+)S_{xx}/ft = 0.1913\ in^3/ft$

$(-)I_{xx}/ft = 0.1742\ in^4/ft$

$(-)S_{xx}/ft = 0.2305\ in^3/ft$



$(+)I_{EFF}/ft = (.71 \times 0.1741) + (.29 \times 0.1742) = 0.1741\ in^4/ft$

$(-)I_{EFF}/ft = (.71 \times 0.1742) + (.29 \times 0.1741) = 0.1742\ in^4/ft$

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Section Inputs

Material: A653 SS Grade 40
Apply cold work of forming strength increase.
No inelastic reserve strength increase.

Modulus of Elasticity, E	29500 ksi
Yield Strength, Fy	40 ksi
Tensile Strength, Fu	55 ksi
Torsion Constant Override, J	0 in⁴
Warping Constant Override, Cw	0 in⁶

Part 1, Thickness 0.024 in
Placement of Part from Origin:

X to center of gravity	0 in
Y to center of gravity	0 in

Outside dimensions, Open shape

	Length (in)	Angle (deg)	Radius (in)	Web	k Coef.	Hole Size (in)	Distance (in)
1	0.2500	0.000	0.12500	None	0.000	0.0000	0.1250
2	0.1680	-90.000	0.06000	None	0.000	0.0000	0.0840
3	0.1000	-180.000	0.06000	None	0.000	0.0000	0.0500
4	0.9670	-180.000	0.12500	None	0.000	0.0000	0.4835
5	1.4300	87.000	0.12500	None	0.000	0.0000	0.7150
6	2.0000	0.000	0.12500	None	0.000	0.0000	1.0000
7	1.4900	-87.000	0.12500	Single	0.000	0.0000	0.7450
8	2.0000	0.000	0.12500	None	0.000	0.0000	1.0000
9	1.4900	87.000	0.12500	Single	0.000	0.0000	0.7450
10	2.0000	0.000	0.12500	None	0.000	0.0000	1.0000
11	1.4900	-87.000	0.12500	Single	0.000	0.0000	0.7450
12	2.0000	0.000	0.12500	None	0.000	0.0000	1.0000
13	1.4900	87.000	0.12500	Single	0.000	0.0000	0.7450
14	2.0000	0.000	0.12500	None	0.000	0.0000	1.0000
15	1.4900	-87.000	0.12500	Single	0.000	0.0000	0.7450
16	3.0000	0.000	0.12500	None	0.000	0.0000	1.5000
17	0.2280	90.000	0.07550	None	0.000	0.0000	0.1140
18	0.4600	180.000	0.07550	None	0.000	0.0000	0.2300
19	0.0720	90.000	0.01200	None	0.000	0.0000	0.0360
20	0.0360	0.000	0.01200	None	0.000	0.0000	0.0180
21	0.3100	0.000	0.01875	None	0.000	0.0000	0.1550

Full Section Properties

Area	0.55813 in²	Wt.	0.0018976 k/ft	Width	23.255 in
Ix	0.2096 in⁴	rx	0.6128 in	Ixy	-0.3066 in⁴
Sx(t)	0.2518 in³	y(t)	0.8325 in	α	88.065 deg
Sx(b)	0.3192 in³	y(b)	0.6567 in		
Zx	0.3134 in³	Height	1.4892 in		

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Iy	9.2779 in⁴	ry	4.0771 in	x_o	-0.7013 in
Sy(l)	1.5224 in³	x(l)	6.0941 in	y_o	0.3180 in
Sy(r)	1.2810 in³	x(r)	7.2428 in	jx	0.8546 in
Zy	1.9660 in³	Width	13.3369 in	jy	-2.8658 in
I_1	9.2882 in⁴	r_1	4.0794 in	Cw	3.4715 in⁶
I_2	0.1992 in⁴	r_2	0.5975 in	J	0.0001072 in⁴
Ic	9.4875 in⁴	rc	4.1229 in		
I_o	9.8184 in⁴	r_o	4.1942 in		

Fully Braced Strength - AISI S100-16/S1-18, US, ASD

Material Type: A653 SS Grade 40, Fy=40 ksi

Axial		Positive Bending		Positive Bending	
Pao	7.735 k	Maxo	4.583 k-in	Mayo	21.658 k-in
Ae	0.34807 in²	Ixe	0.1741 in⁴	Iye	7.3387 in⁴
Ta	13.889 k	Sxe(t)	0.1913 in³	Sye(l)	1.4057 in³
		Sxe(b)	0.3006 in³	Sye(r)	0.9042 in³
Shear					
Vay	2.170 k	Negative Bending		Negative Bending	
Vax	0.114 k	Maxo	5.522 k-in	Mayo	29.394 k-in
		Ixe	0.1742 in⁴	Iye	8.5689 in⁴
Torsion		Sxe(t)	0.2374 in³	Sye(l)	1.3485 in³
Ba	17.287 k-in²	Sxe(b)	0.2305 in³	Sye(r)	1.2272 in³

Section contains no web elements for horizontal shear.

DESIGN INPUT DATA FOR BOX RIB 1 X 24 GA. W/ CLIP

PRODUCT PROPERTIES :

E = 29500. KSI

I = .1742 IN4/FT S = .1913 IN3/FT

DESIGN PARAMETERS :

DEFLECTION = L/ 180.

ALLOW. BENDING STRESS (PSI) = 24000.0

ALLOW. END SUPPORT REACTION (#/FT) = 125.5

ALLOW. INTERMEDIATE SUPPORT REACTION (#/FT) = 125.5

LOAD-SPAN TABLE FOR BOX RIB 1 X 24 GA. W/ CLIP

DEFLECION = L/ 180.

SPAN	SIMPLE SPAN		TWO EQUAL SPAN			THREE EQUAL SPAN		
(FT)	W(PSF)	RE	W(PSF)	RE	RI	W(PSF)	RE	RI
1.00	251.00	125.5	100.40	37.7	125.5	114.09	45.6	125.5
1.25	200.80	125.5	80.32	37.7	125.5	91.27	45.6	125.5
1.50	167.33	125.5	66.93	37.7	125.5	76.06	45.6	125.5
1.75	143.43	125.5	57.37	37.7	125.5	65.19	45.6	125.5
2.00	125.50	125.5	50.20	37.7	125.5	57.05	45.6	125.5
2.25	111.56	125.5	44.62	37.7	125.5	50.71	45.6	125.5
2.50	100.40	125.5	40.16	37.7	125.5	45.64	45.6	125.5
2.75	91.27	125.5	36.51	37.6	125.5	41.49	45.6	125.5
3.00	83.67	125.5	33.47	37.7	125.5	38.03	45.6	125.5
3.25	77.23	125.5	30.89	37.6	125.5	35.10	45.6	125.5
3.50	71.71	125.5	28.69	37.7	125.5	32.60	45.6	125.5
3.75	66.93	125.5	26.77	37.6	125.5	30.42	45.6	125.5
4.00	62.75	125.5	25.10	37.7	125.5	28.52	45.6	125.5

W = ALLOWABLE UNIFORM LOAD
RE = END SOPPORT REACTION AT ALLOW. LOAD (#/FT)
RI = INTERMEDIATE SUPPORT REACTION AT ALLOW. LOAD (#/FT)