NEGATIVE LOAD SPAN CHART FOR : PETERSEN BOX RIB SERIES BOX RIB 3 @ 12" X 24 GA. STEEL (w/ SCREW LEG)						
Span, ft.	TWO EQUAL SPANS			THREE EQUAL SPANS		
	W (psf)	Re	Ri	W (psf)	Re	Ri
1.00	80.72	30.3	100.9	91.73	36.7	100.9
1.25	64.58	30.3	100.9	73.38	36.7	100.9
1.50	53.81	30.3	100.9	61.15	36.7	100.9
1.75	46.13	30.3	100.9	52.42	36.7	100.9
2.00	40.36	30.3	100.9	45.86	36.7	100.9
2.25	35.88	30.3	100.9	40.77	36.7	100.9
2.50	32.29	30.3	100.9	36.69	36.7	100.9
2.75	29.35	30.3	100.9	33.36	36.7	100.9
3.00	26.91	30.3	100.9	30.58	36.7	100.9
3.25	24.84	30.3	100.9	28.22	36.7	100.9
3.50	23.06	30.3	100.9	26.21	36.7	100.9
3.75	21.53	30.3	100.9	24.46	36.7	100.9
4.00	20.18	30.3	100.9	22.93	36.7	100.9

W = Allowable Uniform Wind Load, psf

Re = End Support Reaction, 100.9 #/ft. of panel

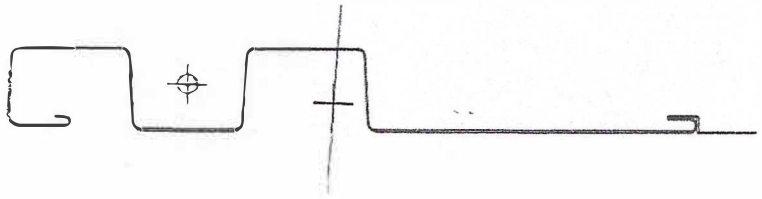
Ri = Intermediate Support Reaction, 100.9 #/ft. of panel

Deflection Limit = L/180

F_y = 40 ksi

I_{xx} = 0.1120 in^4

S_{xx} = 0.1204 in^3



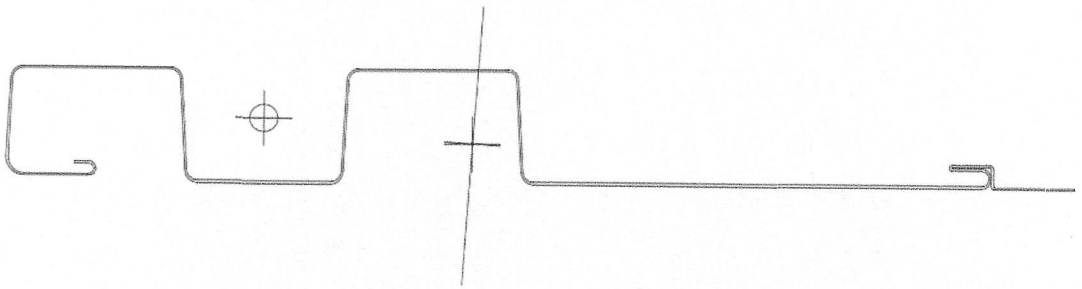
Design Dynamics, Inc.
1333 W. McDermott Dr., Suite 150
Allen, Texas 75013
Ph: (972) 740-5580
designdynamics04@aol.com

$(+)I_{xx}/ft = 0.1169\ in^4/ft.$

$(+)S_{xx}/ft = 0.1208\ in^3/ft.$

$(-)I_{xx}/ft = 0.1105\ in^4/ft.$

$(-)S_{xx}/ft = 0.1734\ in^3/ft$



$(+)I_{EFF}/ft = (.71 \times 0.1169) + (.29 \times 0.1105) = 0.115\ in^4/ft.$

$(-)I_{EFF}/ft = (.71 \times 0.1105) + (.29 \times 0.1169) = 0.112\ in^4/ft.$

PETERSEN BOX RIB- 3 PANEL - 12" X 24 GA.
BOX RIB - 3 W/ NAIL STRIP
Rev. Date: 8/13/2018 11:45:12 AM
By: Thomas M. Shingler, PE
Printed: 4/9/2020 1:32:34 PM

Design Dynamics, Inc.
1333 W. McDermott Dr., Suite 150
Allen, Texas 75013
Ph: (972) 740-5580
designdynamics04@aol.com

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	1.3150	87.000	0.18750	Single	0.000	0.0000	0.6575
6	2.0000	0.000	0.12500	None	0.000	0.0000	1.0000
7	1.3750	-87.000	0.12500	Single	0.000	0.0000	0.6875
8	1.8440	0.000	0.12500	None	0.000	0.0000	0.9220
9	1.3750	87.000	0.12500	Single	0.000	0.0000	0.6875
10	2.0000	0.000	0.12500	None	0.000	0.0000	1.0000
11	1.3750	-87.000	0.12500	Single	0.000	0.0000	0.6875
12	5.5000	0.000	0.12500	None	0.000	0.0000	2.7500
13	0.2280	90.000	0.07550	None	0.000	0.0000	0.1140
14	0.4800	180.000	0.07550	None	0.000	0.0000	0.2400
15	0.0640	90.000	0.00800	None	0.000	0.0000	0.0320
16	0.0600	0.000	0.00800	None	0.000	0.0000	0.0300
17	0.4550	0.000	0.01875	None	0.000	0.0000	0.2275
18	0.2800	-90.000	0.01875	None	0.000	0.0000	0.1400
19	0.9650	0.000	0.01875	None	0.000	0.0000	0.4825

Full Section Properties

Area	0.47480 in²	Wt.	0.0016143 k/ft	Width	19.783 in
Ix	0.144 in⁴	rx	0.5514 in	Ixy	-0.489 in⁴
Sx(t)	0.1597 in³	y(t)	0.9037 in	α	86.009 deg
Sx(b)	0.2990 in³	y(b)	0.4827 in		
Zx	0.2118 in³	Height	1.3864 in		
Iy	7.123 in⁴	ry	3.8733 in	x_o	-2.4510 in
Sy(l)	1.3022 in³	x(l)	5.4698 in	y_o	0.3013 in
Sy(r)	1.0101 in³	x(r)	7.0516 in	jx	2.8210 in
Zy	1.5876 in³	Width	12.5214 in	jy	-1.6913 in

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I_1	7.157 in⁴	r_1	3.8825 in	Cw	1.4112 in⁶
I_2	0.110 in⁴	r_2	0.4818 in	J	0.00009116 in⁴
Ic	7.267 in⁴	rc	3.9123 in		
I_o	10.163 in⁴	r_o	4.6265 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	4.931 k	Maxo	2.892 k-in	Mayo	15.187 k-in
Ae	0.22189 in²	Ixe	0.1169 in⁴	Iye	4.8206 in⁴
Ta	11.773 k	Sxe(t)	0.1208 in³	Sye(l)	1.1040 in³
		Sxe(b)	0.2798 in³	Sye(r)	0.6341 in³
Shear					
Vay	1.520 k	Negative Bending		Negative Bending	
Vax	0.080 k	Maxo	3.536 k-in	Mayo	23.667 k-in
		Ixe	0.1105 in⁴	Iye	6.8235 in⁴
Torsion		Sxe(t)	0.1476 in³	Sye(l)	1.2151 in³
Ba	9.4632 k-in²	Sxe(b)	0.1734 in³	Sye(r)	0.9881 in³

Section contains no web elements for horizontal shear.

DESIGN INPUT DATA FOR BOX RIB 3 X 24 GA. W/ SCREW LEG

PRODUCT PROPERTIES :

E = 29500. KSI

I = .1120 IN4/FT S = .1208 IN3/FT

DESIGN PARAMETERS :

DEFLECTION = L/ 180.

ALLOW. BENDING STRESS (PSI) = 24000.0

ALLOW. END SUPPORT REACTION (#/FT) = 100.9

ALLOW. INTERMEDIATE SUPPORT REACTION (#/FT) = 100.9

LOAD-SPAN TABLE FOR BOX RIB 3 X 24 GA. W/ SCREW LEG

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	201.80	100.9	80.72	30.3	100.9	91.73	36.7	100.9
1.25	161.44	100.9	64.58	30.3	100.9	73.38	36.7	100.9
1.50	134.53	100.9	53.81	30.3	100.9	61.15	36.7	100.9
1.75	115.31	100.9	46.13	30.3	100.9	52.42	36.7	100.9
2.00	100.90	100.9	40.36	30.3	100.9	45.86	36.7	100.9
2.25	89.69	100.9	35.88	30.3	100.9	40.77	36.7	100.9
2.50	80.72	100.9	32.29	30.3	100.9	36.69	36.7	100.9
2.75	73.38	100.9	29.35	30.3	100.9	33.36	36.7	100.9
3.00	67.27	100.9	26.91	30.3	100.9	30.58	36.7	100.9
3.25	62.09	100.9	24.84	30.3	100.9	28.22	36.7	100.9
3.50	57.66	100.9	23.06	30.3	100.9	26.21	36.7	100.9
3.75	53.81	100.9	21.53	30.3	100.9	24.46	36.7	100.9
4.00	50.45	100.9	20.18	30.3	100.9	22.93	36.7	100.9

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