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VIGAS RECTAS DE MADERA LAMINADA TABLAS DE DISEÑO

Informe Técnico Nº 98

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VIGAS RECTAS DE MADERA LAMINADA
TABLAS DE DISEÑO

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Junio, 1985

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PROPIEDAD INTELECTUAL: INSCRIPCION Nº 62.438 · /

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RESUMEN

Uno de los usos más frecuentes que tiene la madera laminada encolada es la viga recta con sus extremos simplemente apoyados. Costaneras, envigados de pisos y de cielo son algunas de sus múltiples aplicaciones.

El cálculo y diseño de este tipo de elemento estructural requiere de una técnica que no todos los usuarios de la madera laminada dominan. A fin de conocer las dimensiones aproximadas para un pre-diseño, estimar los costos y compararlos con los de otros materiales, el presente Informe Técnico entrega tablas que permiten estimar dichas dimensiones de acuerdo con la carga aplicada, longitudes de las vigas y distanciamiento entre ellas.

Las escuadrías definitivas deberán obtenerse mediante el cálculo contemplado en las normas oficiales existentes sobre la materia.

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INTRODUCCION

Un elemento estructural de madera laminada es el resultado de la unión, mediante adhesivo, de dos o más piezas de madera de modo que sus fibras queden paralelas al eje longitudinal del elemento recto o curvo que se está formando.

En la más común aplicación de este proceso, las piezas de madera aserrada, de 1" a 2" de espesor, se ensamblan por sus extremos, formando así láminas que, unidas por sus caras, se convierten en vigas, pilares, arcos u otro elemento estructural. Con este método no existe limitación de dimensiones y el producto resultante tiene una mayor resistencia que la pieza similar de madera no laminada, debido a la dispersión y limitación de los defectos originada por el espesor de la lámina.

El sistema no es nuevo : existen numerosos ejemplos de su excelente comportamiento a través del tiempo en América del Norte y Europa.

Sin embargo, sólo en los últimos años se ha conocido y aplicado esta técnica en nuestro país, utilizando preferentemente pino insigne (Pinus radiata D. DON) y adhesivos a base de resinas sintéticas tales como urea - formaldehído y resorcinol - formaldehído.

La aplicación más frecuente que se le ha dado a nuestros elementos laminados ha sido la viga recta destinada a viviendas para una familia.

Puesto que aún existe desconocimiento de las características y propiedades de este material a nivel de los profesionales de la construcción, el INSTITUTO FORESTAL presenta en este Informe Técnico tablas para orientar el pre-dimensionamiento de las vigas rectas de más de

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manda.

El diseño definitivo o la verificación de las dimensiones deberá hacerla un profesional calificado, pues cada aplicación o estructura debe ser motivo de un análisis independiente, considerando las condiciones específicas de carga, servicio y de trabajo en conjunto. Sin embargo, para efectos de un diseño preliminar, cotización, estimación de costos y/o elección del material que se usará, es útil tener una aproximación de las dimensiones finales, para lo cual los antecedentes que este Informe entrega resultarán de gran provecho.

HIPOTESIS DE CALCULO

El procedimiento de cálculo seguido corresponde al prescrito por la Norma Chilena NCh 1198 E of. 77, "Madera. Construcciones en Madera. Cálculo"., publicada por el INSTITUTO NACIONAL DE NORMALIZACION (INN).

Se aceptarán las siguientes hipótesis para el diseño:

- Madera: pino insigne (pinus radiata D. DON).
- Tipo de laminación: horizontal (Ver Figura Nº 1).
- Sujeción: simplemente apoyada.
- Carga: uniformemente repartida (Ver Figura Nº 2).
- Humedad de equilibrio: H = 16%
- Deformación máxima admisible = luz/240
- Duración de la carga máxima = 3 meses
- Razón de resistencia = 0.50

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- Sin peligro de pudrición.
- Relación usada: $h \leq 6\ b$.

SIMBOLOGIA USADA

Los diferentes parámetros y variables se identifican mediante la simbología siguiente:

L = luz de la viga (cm), Ver Fig. Nº 1

b = ancho de la viga (cm), Ver Fig. Nº 3

h = altura de la viga (cm), Ver Fig. Nº 3

d = distancia entre vigas o espaciamiento de vigas (cm), Ver Fig. Nº 4

q = carga por unidad de superficie ($Kg\text{-}f/m^2$)

p = carga por unidad de longitud (Kg-f/m.l), Ver Figura Nº 2

W = módulo resistente a la flexión (cm^3), Ver Fig. Nº 3

I = momento de inercia (cm^4), Ver Fig. Nº 4

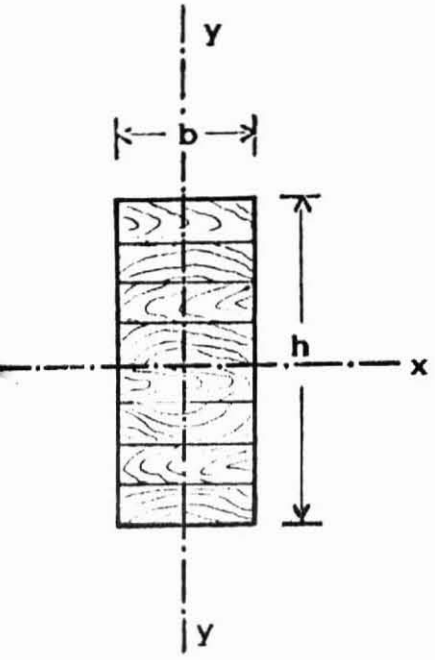
α = factor de modificación por altura.

PROPIEDADES GEOMETRICAS

En el Anexo Nº 1 se entregan las propiedades geométricas que son necesarias para el cálculo de vigas laminadas.

Los valores entregados son:

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A = área = $b \cdot h$ (cm^2)

W_x = módulo resistente a la flexión para eje X - X

$$W_x = \frac{bh^2}{6} \quad (cm^3)$$

I_x = momento de inercia según eje X - X

$$I_x = \frac{bh^3}{12} \quad (cm^4)$$

i_x = radio de giro para eje X - X

$$i_x = \frac{h}{\sqrt{12}} \quad (cm)$$

W_y = módulo resistente a la flexión para eje Y - Y

$$W_y = \frac{hb^2}{6} \quad (cm^3)$$

I_y = momento de inercia según eje Y - Y

$$I_y = \frac{hb^3}{12} \quad (cm^4)$$

i_y = radio de giro para eje Y - Y

$$i_y = \frac{b}{\sqrt{12}} \quad (cm)$$

$$\text{Peso} = \frac{600 \cdot bh}{10^4} = 0{,}06 \cdot bh \quad (Kg/m.l)$$

$$\text{Volumen} = \frac{b \cdot h}{10^4} = 0{,}0001 \cdot bh \quad (m^3/m.l)$$

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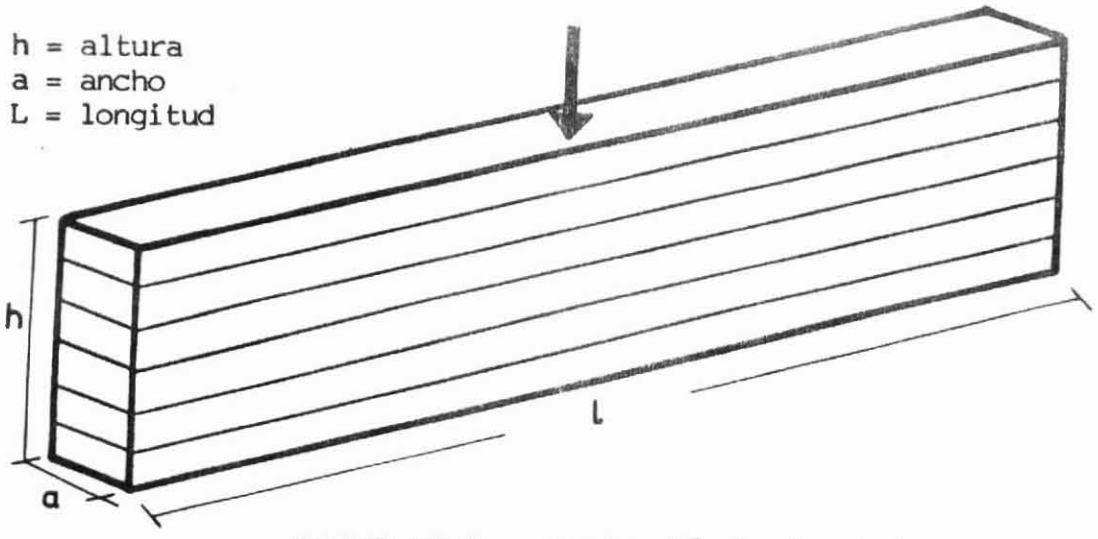


FIGURA Nº 1. Laminación horizontal.

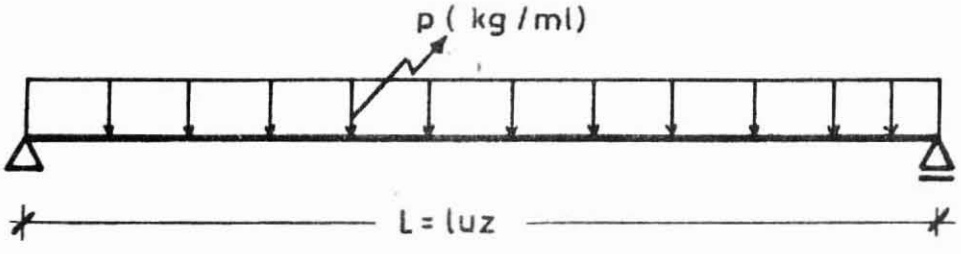
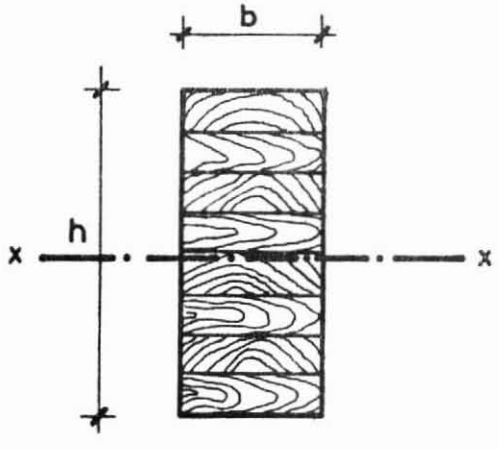


FIGURA Nº 2. Condiciones de apoyo y carga.



$$S_t = b \cdot h$$

$$W_x = \frac{bh^2}{6}$$

$$I_x = \frac{bh^3}{12}$$

FIGURA Nº 3. Geometría de la Sección Transversal.

Los anchos (b) considerados son los señalados en el cuadro siguiente:

CUADRO Nº 1. Anchos Elegidos

ANCHO b cm
4,5
5,0
6,0
7,0
9,0
11,0

Los valores considerados para la altura (h) son los siguientes:

CUADRO Nº 2. Alturas Elegidas

ALTURA h cm
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

ALTURA h cm
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41

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TENSIONES DE DISEÑO

De acuerdo con la norma NCh 1198, se calcularon las tensiones de diseño según el procedimiento señalado en la Tabla Nº 1.

TABLA Nº 1. Cálculo de las Tensiones de Diseño

I T E M	FLEXION	MODULO DE ELASTICIDAD	OBSERV.
Tensión Básica	212 Kg.f/cm^2	85.200 Kg.f/cm^2	C. de H. = 12%
Razón de Resistencia	0,5	-	Especificar
Tensión Admisible	106 Kg.f/cm^2	85.200 Kg.f/cm^2	C. de H. = 12%
ΔH	16 - 12 = 4%	16 - 12 = 4%	
Correc. por H.	(1 - 0,05 x 4) = 0,8	(1 - 0,02 x 4) = 0,92	ΔH = 4%
FM_1	1,1	1,2	Por laminac.
FM_2	α	-	Por altura
FM_3	1,14	1,14	Por durac. carga
Tensión de diseño	106,339 α	107.230 Kg.f/cm^2	H = 16%

Para el caso de la tensión de diseño a la flexión ($\sigma_{f,dis}$) se tiene que:

$$\alpha = \left(\frac{2''}{h''}\right)^{1/9}$$

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luego :

$$\sigma_{f,dis} = 106,3\alpha = 106,3 \frac{(5,08)^{1/9}}{h^{1/9}} \quad Kg.f/cm^2$$

$$\sigma_{f,dis} = 127,3/h^{1/9} \quad Kg.f/cm^2$$

PROCEDIMIENTO

La deformación de cálculo será:

$$\delta_{cálc} = \frac{5 \times p \times L^4 \times 12}{384 \times 107.230 \times b \times h^3} = \frac{L}{240}$$

de donde:

$$h^3 = \frac{60 \times p \times L^3 \times 240}{384 \times 107.230 \times b}$$

$$h = \sqrt[3]{\frac{3,497 \times 10^{-4} \times p \times L^3}{b}}$$

Con este valor se escoge la altura final (hf).

La verificación será :

$$\sigma_{f,tr} = \frac{M_{máx}}{W} = \frac{p \times L^2 \times 6}{8 \times bhf^2}$$

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pero como :

$$\sigma_{f,dis} = \frac{127,3}{h^{1/9}} \quad \text{se debe cumplir}$$

$$\frac{\sigma_{f,tr}}{\sigma_{f,dis}} = \frac{6 \times p \times L^2 \times h^{1/9}}{8 \times b \times h_f^2 \times 127,3} \leq 1$$

es decir, se debe cumplir:

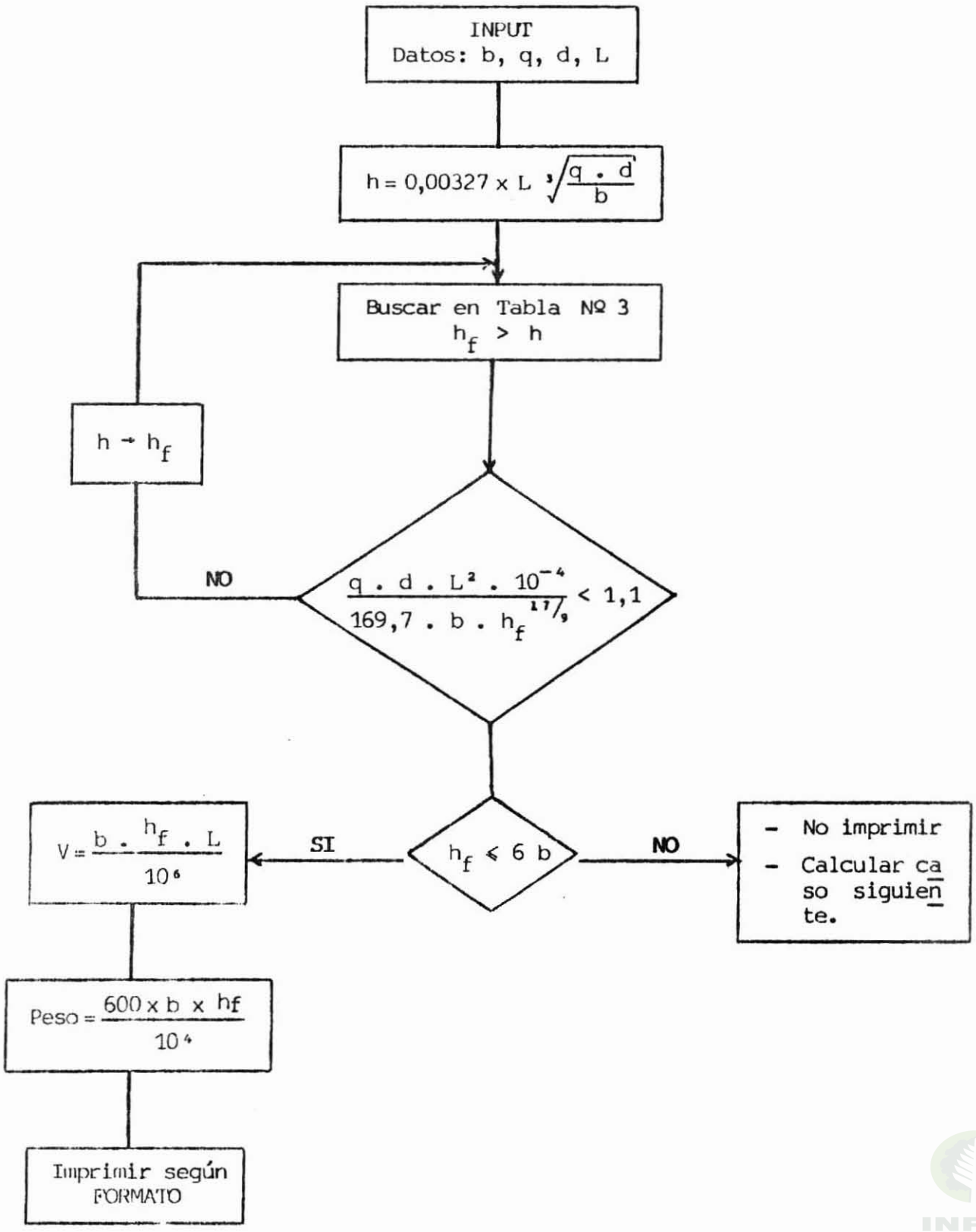
$$\frac{p \times L}{169,7 \times h_f^{17/9} \times b} \leq 1,0$$

DESARROLLO DE LOS CALCULOS

Debido a la gran cantidad de cálculos numéricos que se necesitaban, se recurrió al Centro de Computación del INSTITUTO FORESTAL, en donde se elaboró un programa en FORTRAN de acuerdo con el diagrama de flujo de la Tabla Nº 2.

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TABLA Nº 2. Diagrama de Flujo



Los valores de h_f se extrajeron de la Tabla Nº 3.

TABLA Nº 3. Valores de h_f

h_f (cm)	n	h_f (cm)	n
9	3	23	8
10	4	24	8
11	4	25	8
12	4	26	9
13	5	27	9
14	5	28	9
15	5	29	10
16	6	30	10
17	6	31	10
18	6	32	11
19	7	33	11
20	7	34	11
21	7	35	12
22	7	36	12
		37	12
		38	12
		39	13
		40	13
		41	13

h_f = altura final, (cm)

n = número de láminas, de 32 mm de espesor.

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DATOS CONSIDERADOS

Los valores que se consideraron para los datos q, d, L y b fueron los señalados en la Tabla Nº 4.

TABLA Nº 4. Datos Considerados

q	d	L	b
Kg/m^2	cm	cm	cm
50	40	300	4,5
75	50	350	5,0
100	60	400	6
125	70	450	7
150	80	500	9
175	100	550	11
200	120	600	
225	150	650	
250	200	700	
275	250	750	
300	300	800	
325		850	
350		900	
375			
400			

El valor de b debe estar controlado por :

$$\frac{h_f}{b} \leqslant 6$$

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es decir :

$$\frac{h_f}{6} \leqslant b$$

$$h_f \leqslant 6\ b$$

Ver fase 5 del diagrama

EJEMPLO DE APLICACION

1.- Datos : $b = 5$ cm

$q = 200\ Kg/m^2$

$d = 70$ cm

$L = 600$ cm

2.- Cálculo : $h = 0{,}00327 \times L \times \sqrt[3]{\frac{q \cdot d}{b}}$

$h = 0{,}00327 \times L \times 14{,}09 = 27{,}6$ cm

3.- De Tabla Nº 2

$h_f = 28$ cm

4.- $\frac{q \times d \times L^2 \times 10^{-4}}{169{,}7 \times b \times 28^{17/9}} = 1{,}097 < 1{,}1$ O.K.

5.- ¿$h_f \leqslant 6\ b$?

$28 \leqslant 6\ b = 6 \times 5 = 30$ O.K.

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$$\text{Volumen} = V = \frac{b \cdot h_f \cdot L}{10^4} = \frac{5 \cdot 28 \cdot 600}{10^4} = 0{,}084 \ m^3$$

$$7.- \ \text{Peso} = \frac{b \times h_f \times 600}{10^4} = \frac{5 \times 28 \times 600}{10} = 8{,}4 \ Kg/m.l$$

(peso específico = 600 Kg/m^3)

TABLAS DE DISEÑO

Los listados de los valores entregados por el computador se presentan en el Anexo Nº 2, en la forma de cuadros que se explican por sí mismos.

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ANEXO Nº 1

PROPIEDADES GEOMETRICAS DE LAS VIGAS LAMINADAS

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PROPIEDADES GEOMETRICAS DE VIGAS LAMINADAS

ESPESOR DE LA LAMINA = 32 mm.

A= SECCION TRANSVERSAL
W=MODULO RESISTENCIA A FLEXION
I= MOMENTO DE INERCIA
i= RADIO DE GIRO
b= ANCHO
h=ALTURA

b = 4.5

NRO. DE LAMINAS	h cm.	A cm2	EJE X - X Wx cm3	EJE X - X Ix cm4	EJE X - X ix cm.	EJE Y - Y Wy cm3	EJE Y - Y Iy cm4	EJE Y - Y iy cm.	PESO Kg/m.l	VOL. m3/m.l
3	9	40.5	60.75	273.37	2.6	30.37	68.34	1.3	2.43	.00405
4	10	45.0	75.00	375.00	2.9	33.75	75.94	1.3	2.70	.00450
4	11	49.5	90.75	499.12	3.2	37.12	83.53	1.3	2.97	.00495
4	12	54.0	108.00	648.00	3.5	40.50	91.12	1.3	3.24	.00540
5	13	58.5	126.75	823.87	3.8	43.87	98.72	1.3	3.51	.00585
5	14	63.0	147.00	1029.00	4.0	47.25	106.31	1.3	3.78	.00630
5	15	67.5	168.75	1265.62	4.3	50.62	113.91	1.3	4.05	.00675
6	16	72.0	192.00	1536.00	4.6	54.00	121.50	1.3	4.32	.00720
6	17	76.5	216.75	1842.37	4.9	57.37	129.09	1.3	4.59	.00765
6	18	81.0	243.00	2187.00	5.2	60.75	136.69	1.3	4.86	.00810
7	19	85.5	270.75	2572.12	5.5	64.12	144.28	1.3	5.13	.00855
7	20	90.0	300.00	3000.00	5.8	67.50	151.87	1.3	5.40	.00900
7	21	94.5	330.75	3472.87	6.1	70.87	159.47	1.3	5.67	.00945
7	22	99.0	363.00	3993.00	6.4	74.25	167.06	1.3	5.94	.00990
8	23	103.5	396.75	4562.62	6.6	77.62	174.66	1.3	6.21	.01035
8	24	108.0	432.00	5184.00	6.9	81.00	182.25	1.3	6.48	.01080
8	25	112.5	468.75	5859.37	7.2	84.37	189.84	1.3	6.75	.01125
9	26	117.0	507.00	6591.00	7.5	87.75	197.44	1.3	7.02	.01170
9	27	121.5	546.75	7381.12	7.8	91.12	205.03	1.3	7.29	.01215
9	28	126.0	588.00	8232.00	8.1	94.50	212.62	1.3	7.56	.01260
10	29	130.5	630.75	9145.87	8.4	97.87	220.22	1.3	7.83	.01305
10	30	135.0	675.00	10125.00	8.7	101.25	227.81	1.3	8.10	.01350
10	31	139.5	720.75	11171.62	8.9	104.62	235.41	1.3	8.37	.01395
11	32	144.0	768.00	12288.00	9.2	108.00	243.00	1.3	8.64	.01440
11	33	148.5	816.75	13476.37	9.5	111.37	250.59	1.3	8.91	.01485
11	34	153.0	867.00	14739.00	9.8	114.75	258.19	1.3	9.18	.01530
12	35	157.5	918.75	16078.12	10.1	118.12	265.78	1.3	9.45	.01575
12	36	162.0	972.00	17496.00	10.4	121.50	273.37	1.3	9.72	.01620
12	37	166.5	1026.75	18994.87	10.7	124.87	280.97	1.3	9.99	.01665
12	38	171.0	1083.00	20577.00	11.0	128.25	288.56	1.3	10.26	.01710
13	39	175.5	1140.75	22244.62	11.3	131.62	296.16	1.3	10.53	.01755
13	40	180.0	1200.00	24000.00	11.5	135.00	303.75	1.3	10.80	.01800
13	41	184.5	1260.75	25845.37	11.8	138.37	311.34	1.3	11.07	.01845

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PROPIEDADES GEOMETRICAS DE VIGAS LAMINADAS

ESPESOR DE LA LAMINA = 32 mm.

A= SECCION TRANSVERSAL
W=MODULO RESISTENCIA A FLEXION
I= MOMENTO DE INERCIA
i= RADIO DE GIRO
b= ANCHO
h=ALTURA

b = 5.0

NRO. DE LAMINAS	h cm.	A cm2	EJE X - X Wx cm3	EJE X - X Ix cm4	EJE X - X ix cm.	EJE Y - Y Wy cm3	EJE Y - Y Iy cm4	EJE Y - Y iy cm.	PESO Kg/m.l	VOL. m3/m.l
3	9	45.0	67.50	303.75	2.6	37.50	93.75	1.4	2.70	.00450
4	10	50.0	83.33	416.67	2.9	41.67	104.17	1.4	3.00	.00500
4	11	55.0	100.83	554.58	3.2	45.83	114.58	1.4	3.30	.00550
4	12	60.0	120.00	720.00	3.5	50.00	125.00	1.4	3.60	.00600
5	13	65.0	140.83	915.42	3.8	54.17	135.42	1.4	3.90	.00650
5	14	70.0	163.33	1143.33	4.0	58.33	145.83	1.4	4.20	.00700
5	15	75.0	187.50	1406.25	4.3	62.50	156.25	1.4	4.50	.00750
6	16	80.0	213.33	1706.67	4.6	66.67	166.67	1.4	4.80	.00800
6	17	85.0	240.83	2047.08	4.9	70.83	177.08	1.4	5.10	.00850
6	18	90.0	270.00	2430.00	5.2	75.00	187.50	1.4	5.40	.00900
7	19	95.0	300.83	2857.92	5.5	79.17	197.92	1.4	5.70	.00950
7	20	100.0	333.33	3333.33	5.8	83.33	208.33	1.4	6.00	.01000
7	21	105.0	367.50	3858.75	6.1	87.50	218.75	1.4	6.30	.01050
7	22	110.0	403.33	4436.67	6.4	91.67	229.17	1.4	6.60	.01100
8	23	115.0	440.83	5069.58	6.6	95.83	239.58	1.4	6.90	.01150
8	24	120.0	480.00	5760.00	6.9	100.00	250.00	1.4	7.20	.01200
8	25	125.0	520.83	6510.42	7.2	104.17	260.42	1.4	7.50	.01250
9	26	130.0	563.33	7323.33	7.5	108.33	270.83	1.4	7.80	.01300
9	27	135.0	607.50	8201.25	7.8	112.50	281.25	1.4	8.10	.01350
9	28	140.0	653.33	9146.67	8.1	116.67	291.67	1.4	8.40	.01400
10	29	145.0	700.83	10162.08	8.4	120.83	302.08	1.4	8.70	.01450
10	30	150.0	750.00	11250.00	8.7	125.00	312.50	1.4	9.00	.01500
10	31	155.0	800.83	12412.92	8.9	129.17	322.92	1.4	9.30	.01550
11	32	160.0	853.33	13653.33	9.2	133.33	333.33	1.4	9.60	.01600
11	33	165.0	907.50	14973.75	9.5	137.50	343.75	1.4	9.90	.01650
11	34	170.0	963.33	16376.67	9.8	141.67	354.17	1.4	10.20	.01700
12	35	175.0	1020.83	17864.58	10.1	145.83	364.58	1.4	10.50	.01750
12	36	180.0	1080.00	19440.00	10.4	150.00	375.00	1.4	10.80	.01800
12	37	185.0	1140.83	21105.42	10.7	154.17	385.42	1.4	11.10	.01850
12	38	190.0	1203.33	22863.33	11.0	158.33	395.83	1.4	11.40	.01900
13	39	195.0	1267.50	24716.25	11.3	162.50	406.25	1.4	11.70	.01950
13	40	200.0	1333.33	26666.67	11.5	166.67	416.67	1.4	12.00	.02000
13	41	205.0	1400.83	28717.08	11.8	170.83	427.08	1.4	12.30	.02050

INFOR

PROPIEDADES GEOMETRICAS DE VIGAS LAMINADAS

ESPESOR DE LA LAMINA = 32 mm.

A= SECCION TRANSVERSAL
W=MODULO RESISTENCIA A FLEXION
I= MOMENTO DE INERCIA
i= RADIO DE GIRO
b= ANCHO
h=ALTURA

b = 6.0

NRO. DE LAMINAS	h cm.	A cm2	EJE X - X Wx cm3	EJE X - X Ix cm4	EJE X - X ix cm.	EJE Y - Y Wy cm3	EJE Y - Y Iy cm4	EJE Y - Y iy cm.	PESO Kg/m.l	VOL. m3/m.l
3	9	54.0	81.00	364.50	2.6	54.00	162.00	1.7	3.24	.00540
4	10	60.0	100.00	500.00	2.9	60.00	180.00	1.7	3.60	.00600
4	11	66.0	121.00	665.50	3.2	66.00	198.00	1.7	3.96	.00660
4	12	72.0	144.00	864.00	3.5	72.00	216.00	1.7	4.32	.00720
5	13	78.0	169.00	1098.50	3.8	78.00	234.00	1.7	4.68	.00780
5	14	84.0	196.00	1372.00	4.0	84.00	252.00	1.7	5.04	.00840
5	15	90.0	225.00	1687.50	4.3	90.00	270.00	1.7	5.40	.00900
6	16	96.0	256.00	2048.00	4.6	96.00	288.00	1.7	5.76	.00960
6	17	102.0	289.00	2456.50	4.9	102.00	306.00	1.7	6.12	.01020
6	18	108.0	324.00	2916.00	5.2	108.00	324.00	1.7	6.48	.01080
7	19	114.0	361.00	3429.50	5.5	114.00	342.00	1.7	6.84	.01140
7	20	120.0	400.00	4000.00	5.8	120.00	360.00	1.7	7.20	.01200
7	21	126.0	441.00	4630.50	6.1	126.00	378.00	1.7	7.56	.01260
7	22	132.0	484.00	5324.00	6.4	132.00	396.00	1.7	7.92	.01320
8	23	138.0	529.00	6083.50	6.6	138.00	414.00	1.7	8.28	.01380
8	24	144.0	576.00	6912.00	6.9	144.00	432.00	1.7	8.64	.01440
8	25	150.0	625.00	7812.50	7.2	150.00	450.00	1.7	9.00	.01500
9	26	156.0	676.00	8788.00	7.5	156.00	468.00	1.7	9.36	.01560
9	27	162.0	729.00	9841.50	7.8	162.00	486.00	1.7	9.72	.01620
9	28	168.0	784.00	10976.00	8.1	168.00	504.00	1.7	10.08	.01680
10	29	174.0	841.00	12194.50	8.4	174.00	522.00	1.7	10.44	.01740
10	30	180.0	900.00	13500.00	8.7	180.00	540.00	1.7	10.80	.01800
10	31	186.0	961.00	14895.50	8.9	186.00	558.00	1.7	11.16	.01860
11	32	192.0	1024.00	16384.00	9.2	192.00	576.00	1.7	11.52	.01920
11	33	198.0	1089.00	17968.50	9.5	198.00	594.00	1.7	11.88	.01980
11	34	204.0	1156.00	19652.00	9.8	204.00	612.00	1.7	12.24	.02040
12	35	210.0	1225.00	21437.50	10.1	210.00	630.00	1.7	12.60	.02100
12	36	216.0	1296.00	23328.00	10.4	216.00	648.00	1.7	12.96	.02160
12	37	222.0	1369.00	25326.50	10.7	222.00	666.00	1.7	13.32	.02220
12	38	228.0	1444.00	27436.00	11.0	228.00	684.00	1.7	13.68	.02280
13	39	234.0	1521.00	29659.50	11.3	234.00	702.00	1.7	14.04	.02340
13	40	240.0	1600.00	32000.00	11.5	240.00	720.00	1.7	14.40	.02400
13	41	246.0	1681.00	34460.50	11.8	246.00	738.00	1.7	14.76	.02460

INFOR

PROPIEDADES GEOMETRICAS DE VIGAS LAMINADAS

ESPESOR DE LA LAMINA = 32 mm.

A= SECCION TRANSVERSAL
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I= MOMENTO DE INERCIA
i= RADIO DE GIRO
b= ANCHO
h=ALTURA

b = 7.0

NRO. DE LAMINAS	h cm.	A cm2	EJE X - X Wx cm3	EJE X - X Ix cm4	EJE X - X ix cm.	EJE Y - Y Wy cm3	EJE Y - Y Iy cm4	EJE Y - Y iy cm.	PESO Kg/m.l	VOL. m3/m.l
3	9	63.0	94.50	425.25	2.6	73.50	257.25	2.0	3.78	.00630
4	10	70.0	116.67	583.33	2.9	81.67	285.83	2.0	4.20	.00700
4	11	77.0	141.17	776.42	3.2	89.83	314.42	2.0	4.62	.00770
4	12	84.0	168.00	1008.00	3.5	98.00	343.00	2.0	5.04	.00840
5	13	91.0	197.17	1281.58	3.8	106.17	371.58	2.0	5.46	.00910
5	14	98.0	228.67	1600.67	4.0	114.33	400.17	2.0	5.88	.00980
5	15	105.0	262.50	1968.75	4.3	122.50	428.75	2.0	6.30	.01050
6	16	112.0	298.67	2389.33	4.6	130.67	457.33	2.0	6.72	.01120
6	17	119.0	337.17	2865.92	4.9	138.83	485.92	2.0	7.14	.01190
6	18	126.0	378.00	3402.00	5.2	147.00	514.50	2.0	7.56	.01260
7	19	133.0	421.17	4001.08	5.5	155.17	543.08	2.0	7.98	.01330
7	20	140.0	466.67	4666.67	5.8	163.33	571.67	2.0	8.40	.01400
7	21	147.0	514.50	5402.25	6.1	171.50	600.25	2.0	8.82	.01470
7	22	154.0	564.67	6211.33	6.4	179.67	628.83	2.0	9.24	.01540
8	23	161.0	617.17	7097.42	6.6	187.83	657.42	2.0	9.66	.01610
8	24	168.0	672.00	8064.00	6.9	196.00	686.00	2.0	10.08	.01680
8	25	175.0	729.17	9114.58	7.2	204.17	714.58	2.0	10.50	.01750
9	26	182.0	788.67	10252.67	7.5	212.33	743.17	2.0	10.92	.01820
9	27	189.0	850.50	11481.75	7.8	220.50	771.75	2.0	11.34	.01890
9	28	196.0	914.67	12805.33	8.1	228.67	800.33	2.0	11.76	.01960
10	29	203.0	981.17	14226.92	8.4	236.83	828.92	2.0	12.18	.02030
10	30	210.0	1050.00	15750.00	8.7	245.00	857.50	2.0	12.60	.02100
10	31	217.0	1121.17	17378.08	8.9	253.17	886.08	2.0	13.02	.02170
11	32	224.0	1194.67	19114.67	9.2	261.33	914.67	2.0	13.44	.02240
11	33	231.0	1270.50	20963.25	9.5	269.50	943.25	2.0	13.86	.02310
11	34	238.0	1348.67	22927.33	9.8	277.67	971.83	2.0	14.28	.02380
12	35	245.0	1429.17	25010.42	10.1	285.83	1000.42	2.0	14.70	.02450
12	36	252.0	1512.00	27216.00	10.4	294.00	1029.00	2.0	15.12	.02520
12	37	259.0	1597.17	29547.58	10.7	302.17	1057.58	2.0	15.54	.02590
12	38	266.0	1684.67	32008.67	11.0	310.33	1086.17	2.0	15.96	.02660
13	39	273.0	1774.50	34602.75	11.3	318.50	1114.75	2.0	16.38	.02730
13	40	280.0	1866.67	37333.33	11.5	326.67	1143.33	2.0	16.80	.02800
13	41	287.0	1961.17	40203.92	11.8	334.83	1171.92	2.0	17.22	.02870

INFOR

PROPIEDADES GEOMETRICAS DE VIGAS LAMINADAS

ESPESOR DE LA LAMINA = 32 mm.

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I= MOMENTO DE INERCIA
i= RADIO DE GIRO
b= ANCHO
h=ALTURA

b = 9.0

NRO. DE LAMINAS	h cm.	EJE X - X A cm2	EJE X - X Wx cm3	EJE X - X Ix cm4	EJE X - X ix cm.	EJE Y - Y Wy cm3	EJE Y - Y Iy cm4	EJE Y - Y iy cm.	PESO Kg/m.l	VOL. m3/m.l
3	9	81.0	121.50	546.75	2.6	121.50	546.75	2.6	4.86	.00810
4	10	90.0	150.00	750.00	2.9	135.00	607.50	2.6	5.40	.00900
4	11	99.0	181.50	998.25	3.2	148.50	668.25	2.6	5.94	.00990
4	12	108.0	216.00	1296.00	3.5	162.00	729.00	2.6	6.48	.01080
5	13	117.0	253.50	1647.75	3.8	175.50	789.75	2.6	7.02	.01170
5	14	126.0	294.00	2058.00	4.0	189.00	850.50	2.6	7.56	.01260
5	15	135.0	337.50	2531.25	4.3	202.50	911.25	2.6	8.10	.01350
6	16	144.0	384.00	3072.00	4.6	216.00	972.00	2.6	8.64	.01440
6	17	153.0	433.50	3684.75	4.9	229.50	1032.75	2.6	9.18	.01530
6	18	162.0	486.00	4374.00	5.2	243.00	1093.50	2.6	9.72	.01620
7	19	171.0	541.50	5144.25	5.5	256.50	1154.25	2.6	10.26	.01710
7	20	180.0	600.00	6000.00	5.8	270.00	1215.00	2.6	10.80	.01800
7	21	189.0	661.50	6945.75	6.1	283.50	1275.75	2.6	11.34	.01890
7	22	198.0	726.00	7986.00	6.4	297.00	1336.50	2.6	11.88	.01980
8	23	207.0	793.50	9125.25	6.6	310.50	1397.25	2.6	12.42	.02070
8	24	216.0	864.00	10368.00	6.9	324.00	1458.00	2.6	12.96	.02160
8	25	225.0	937.50	11718.75	7.2	337.50	1518.75	2.6	13.50	.02250
9	26	234.0	1014.00	13182.00	7.5	351.00	1579.50	2.6	14.04	.02340
9	27	243.0	1093.50	14762.25	7.8	364.50	1640.25	2.6	14.58	.02430
9	28	252.0	1176.00	16464.00	8.1	378.00	1701.00	2.6	15.12	.02520
10	29	261.0	1261.50	18291.75	8.4	391.50	1761.75	2.6	15.66	.02610
10	30	270.0	1350.00	20250.00	8.7	405.00	1822.50	2.6	16.20	.02700
10	31	279.0	1441.50	22343.25	8.9	418.50	1883.25	2.6	16.74	.02790
11	32	288.0	1536.00	24576.00	9.2	432.00	1944.00	2.6	17.28	.02880
11	33	297.0	1633.50	26952.75	9.5	445.50	2004.75	2.6	17.82	.02970
11	34	306.0	1734.00	29478.00	9.8	459.00	2065.50	2.6	18.36	.03060
12	35	315.0	1837.50	32156.25	10.1	472.50	2126.25	2.6	18.90	.03150
12	36	324.0	1944.00	34992.00	10.4	486.00	2187.00	2.6	19.44	.03240
12	37	333.0	2053.50	37989.75	10.7	499.50	2247.75	2.6	19.98	.03330
12	38	342.0	2166.00	41154.00	11.0	513.00	2308.50	2.6	20.52	.03420
13	39	351.0	2281.50	44489.25	11.3	526.50	2369.25	2.6	21.06	.03510
13	40	360.0	2400.00	48000.00	11.5	540.00	2430.00	2.6	21.60	.03600
13	41	369.0	2521.50	51690.75	11.8	553.50	2490.75	2.6	22.14	.03690

INFOR

PROPIEDADES GEOMETRICAS DE VIGAS LAMINADAS

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I= MOMENTO DE INERCIA
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h=ALTURA

b = 11.0

NRO. DE LAMINAS	h cm.	A cm2	Wx cm3	Ix cm4	ix cm.	Wy cm3	Iy cm4	iy cm.	PESO Kg/m.l	VOL. m3/m.l
			EJE X - X			EJE Y - Y				
3	9	99.0	148.50	668.25	2.6	181.50	998.25	3.2	5.94	.00990
4	10	110.0	183.33	916.67	2.9	201.67	1109.17	3.2	6.60	.01100
4	11	121.0	221.83	1220.08	3.2	221.83	1220.08	3.2	7.26	.01210
4	12	132.0	264.00	1584.00	3.5	242.00	1331.00	3.2	7.92	.01320
5	13	143.0	309.83	2013.92	3.8	262.17	1441.92	3.2	8.58	.01430
5	14	154.0	359.33	2515.33	4.0	282.33	1552.83	3.2	9.24	.01540
5	15	165.0	412.50	3093.75	4.3	302.50	1663.75	3.2	9.90	.01650
6	16	176.0	469.33	3754.67	4.6	322.67	1774.67	3.2	10.56	.01760
6	17	187.0	529.83	4503.58	4.9	342.83	1885.58	3.2	11.22	.01870
6	18	198.0	594.00	5346.00	5.2	363.00	1996.50	3.2	11.88	.01980
7	19	209.0	661.83	6287.42	5.5	383.17	2107.42	3.2	12.54	.02090
7	20	220.0	733.33	7333.33	5.8	403.33	2218.33	3.2	13.20	.02200
7	21	231.0	808.50	8489.25	6.1	423.50	2329.25	3.2	13.86	.02310
7	22	242.0	887.33	9760.67	6.4	443.67	2440.17	3.2	14.52	.02420
8	23	253.0	969.83	11153.08	6.6	463.83	2551.08	3.2	15.18	.02530
8	24	264.0	1056.00	12672.00	6.9	484.00	2662.00	3.2	15.84	.02640
8	25	275.0	1145.83	14322.92	7.2	504.17	2772.92	3.2	16.50	.02750
9	26	286.0	1239.33	16111.33	7.5	524.33	2883.83	3.2	17.16	.02860
9	27	297.0	1336.50	18042.75	7.8	544.50	2994.75	3.2	17.82	.02970
9	28	308.0	1437.33	20122.67	8.1	564.67	3105.67	3.2	18.48	.03080
10	29	319.0	1541.83	22356.58	8.4	584.83	3216.58	3.2	19.14	.03190
10	30	330.0	1650.00	24750.00	8.7	605.00	3327.50	3.2	19.80	.03300
10	31	341.0	1761.83	27308.41	8.9	625.17	3438.42	3.2	20.46	.03410
11	32	352.0	1877.33	30037.33	9.2	645.33	3549.33	3.2	21.12	.03520
11	33	363.0	1996.50	32942.25	9.5	665.50	3660.25	3.2	21.78	.03630
11	34	374.0	2119.33	36028.66	9.8	685.67	3771.17	3.2	22.44	.03740
12	35	385.0	2245.83	39302.08	10.1	705.83	3882.08	3.2	23.10	.03850
12	36	396.0	2376.00	42768.00	10.4	726.00	3993.00	3.2	23.76	.03960
12	37	407.0	2509.83	46431.91	10.7	746.17	4103.92	3.2	24.42	.04070
12	38	418.0	2647.33	50299.33	11.0	766.33	4214.83	3.2	25.08	.04180
13	39	429.0	2788.50	54375.75	11.3	786.50	4325.75	3.2	25.74	.04290
13	40	440.0	2933.33	58666.66	11.5	806.67	4436.67	3.2	26.40	.04400
13	41	451.0	3081.83	63177.58	11.8	826.83	4547.58	3.2	27.06	.04510

INFOR

ANEXO Nº 2

DIMENSIONAMIENTO DE VIGAS LAMINADAS RECTAS

INFOR

DIMENSIONAMIENTO DE VIGAS LAMINADAS RECTAS

Ancho (cm) = 4.5
Luz (cm) = 300.

Espaciamiento (cm)

40	50	60	70	80	100	120	150	200	250	300
9 .01215 2.4	9 .01215 2.4	9 .01215 2.4	10 .01350 2.7	10 .01350 2.7	11 .01485 3.0	11 .01485 3.0	12 .01620 3.2	13 .01755 3.5	14 .01890 3.8	15 .02025 4.0
9 .01215 2.4	10 .01350 2.7	10 .01350 2.7	11 .01485 3.0	11 .01485 3.0	12 .01620 3.2	13 .01755 3.5	14 .01890 3.8	15 .02025 4.0	16 .02160 4.3	17 .02295 4.6
10 .01350 2.7	11 .01485 3.0	11 .01485 3.0	12 .01620 3.2	12 .01620 3.2	13 .01755 3.5	14 .01890 3.8	15 .02025 4.0	17 .02295 4.6	18 .02430 4.9	19 .02565 5.1
11 .01485 3.0	11 .01485 3.0	12 .01620 3.2	13 .01755 3.5	13 .01755 3.5	14 .01890 3.8	15 .02025 4.0	16 .02160 4.3	18 .02430 4.9	19 .02565 5.1	20 .02700 5.4
11 .01485 3.0	12 .01620 3.2	13 .01755 3.5	14 .01890 3.8	14 .01890 3.8	15 .02025 4.0	16 .02160 4.3	17 .02295 4.6	19 .02565 5.1	20 .02700 5.4	22 .02970 5.9
12 .01620 3.2	13 .01755 3.5	14 .01890 3.8	14 .01890 3.8	15 .02025 4.0	16 .02160 4.3	17 .02295 4.6	18 .02430 4.9	20 .02700 5.4	21 .02835 5.7	23 .03105 6.2
12 .01620 3.2	13 .01755 3.5	14 .01890 3.8	15 .02025 4.0	15 .02025 4.0	17 .02295 4.6	18 .02430 4.9	19 .02565 5.1	21 .02835 5.7	22 .02970 5.9	24 .03240 6.5
13 .01755 3.5	14 .01890 3.8	15 .02025 4.0	15 .02025 4.0	16 .02160 4.3	17 .02295 4.6	18 .02430 4.9	20 .02700 5.4	22 .02970 5.9	23 .03105 6.2	25 .03375 6.7
13 .01755 3.5	14 .01890 3.8	15 .02025 4.0	16 .02160 4.3	17 .02295 4.6	18 .02430 4.9	19 .02565 5.1	20 .02700 5.4	22 .02970 5.9	24 .03240 6.5	26 .03510 7.0
14 .01890 3.8	15 .02025 4.0	16 .02160 4.3	16 .02160 4.3	17 .02295 4.6	18 .02430 4.9	20 .02700 5.4	21 .02835 5.7	23 .03105 6.2	25 .03375 6.7	26 .03510 7.0
14 .01890 3.8	15 .02025 4.0	16 .02160 4.3	17 .02295 4.6	18 .02430 4.9	19 .02565 5.1	20 .02700 5.4	22 .02970 5.9	24 .03240 6.5	26 .03510 7.0	27 .03645 7.3
14 .01890 3.8	16 .02160 4.3	16 .02160 4.3	17 .02295 4.6	18 .02430 4.9	19 .02565 5.1	21 .02835 5.7	22 .02970 5.9	24 .03240 6.5	26 .03510 7.0	28 .03510 7.0
15 .02025 4.0	16 .02160 4.3	17 .02295 4.6	18 .02430 4.9	19 .02565 5.1	20 .02700 5.4	21 .02835 5.7	23 .03105 6.2	25 .03375 6.7	27 .03645 7.3	29 .03645 7.3
15 .02025 4.0	16 .02160 4.3	17 .02295 4.6	18 .02430 4.9	19 .02565 5.1	20 .02700 5.4	22 .02970 5.9	23 .03105 6.2	26 .03510 7.0	27 .03645 7.3	29 .03645 7.3
15 .02025 4.0	17 .02295 4.6	18 .02430 4.9	19 .02565 5.1	19 .02565 5.1	21 .02835 5.7	22 .02970 5.9	24 .03240 6.5	26 .03510 7.0	28 .03510 7.0	30 .03510 7.0

Para cada espaciamiento y carga se presenta : Altura (cm)
Volumen (M3)
Peso (Kg/m.l)

INFOR

DIMENSIONAMIENTO DE VIGAS LAMINADAS RECTAS

Ancho (cm) = 4.5
Luz (cm) = 350.

Espaciamiento (cm)										
40	50	60	70	80	100	120	150	200	250	300
9 .01417 2.4	10 .01575 2.7	10 .01575 2.7	11 .01732 3.0	12 .01890 3.2	12 .01890 3.2	13 .02047 3.5	14 .02205 3.8	15 .02362 4.0	17 .02677 4.6	18 .02835 4.9
10 .01575 2.7	11 .01732 3.0	12 .01890 3.2	13 .02047 3.5	13 .02047 3.5	14 .02205 3.8	15 .02362 4.0	16 .02520 4.3	18 .02835 4.9	19 .02992 5.1	20 .03150 5.4
12 .01890 3.2	12 .01890 3.2	13 .02047 3.5	14 .02205 3.8	14 .02205 3.8	15 .02362 4.0	16 .02520 4.3	18 .02835 4.9	19 .02992 5.1	21 .03307 5.7	22 .03465 5.9
12 .01890 3.2	13 .02047 3.5	14 .02205 3.8	15 .02362 4.0	15 .02362 4.0	17 .02677 4.6	18 .02835 4.9	19 .02992 5.1	21 .03307 5.7	22 .03465 5.9	24 .03780 6.5
13 .02047 3.5	14 .02205 3.8	15 .02362 4.0	16 .02520 4.3	16 .02520 4.3	18 .02835 4.9	19 .02992 5.1	20 .03150 5.4	22 .03465 5.9	24 .03780 6.5	25 .03937 6.7
14 .02205 3.8	15 .02362 4.0	16 .02520 4.3	16 .02520 4.3	17 .02677 4.6	18 .02835 4.9	20 .03150 5.4	21 .03307 5.7	23 .03622 6.2	25 .03937 6.7	26 .04095 7.0
14 .02205 3.8	15 .02362 4.0	16 .02520 4.3	17 .02677 4.6	18 .02835 4.9	19 .02992 5.1	20 .03150 5.4	22 .03465 5.9	24 .03780 6.5	26 .04095 7.0	28 .04095 7.0
15 .02362 4.0	16 .02520 4.3	17 .02677 4.6	18 .02835 4.9	19 .02992 5.1	20 .03150 5.4	21 .03307 5.7	23 .03622 6.2	25 .03937 6.7	27 .04252 7.3	29 .04252 7.3
15 .02362 4.0	17 .02677 4.6	18 .02835 4.9	18 .02835 4.9	19 .02992 5.1	21 .03307 5.7	22 .03465 5.9	24 .03780 6.5	26 .04095 7.0	28 .04095 7.0	30 .04095 7.0
16 .02520 4.3	17 .02677 4.6	18 .02835 4.9	19 .02992 5.1	20 .03150 5.4	21 .03307 5.7	23 .03622 6.2	24 .03780 6.5	27 .04252 7.3	29 .04252 7.3	31 .04252 7.3
16 .02520 4.3	18 .02835 4.9	19 .02992 5.1	20 .03150 5.4	20 .03150 5.4	22 .03465 5.9	23 .03622 6.2	25 .03937 6.7	28 .03937 6.7	30 .03937 6.7	32 .03937 6.7
17 .02677 4.6	18 .02835 4.9	19 .02992 5.1	20 .03150 5.4	21 .03307 5.7	23 .03622 6.2	24 .03780 6.5	26 .04095 7.0	28 .04095 7.0	31 .04095 7.0	32 .04095 7.0
17 .02677 4.6	18 .02835 4.9	20 .03150 5.4	21 .03307 5.7	22 .03465 5.9	23 .03622 6.2	25 .03937 6.7	26 .04095 7.0	29 .04095 7.0	31 .04095 7.0	33 .04095 7.0
18 .02835 4.9	19 .02992 5.1	20 .03150 5.4	21 .03307 5.7	22 .03465 5.9	24 .03780 6.5	25 .03937 6.7	27 .04252 7.3	30 .04252 7.3	32 .04252 7.3	34 .04252 7.3
18 .02835 4.9	19 .02992 5.1	20 .03150 5.4	22 .03465 5.9	23 .03622 6.2	24 .03780 6.5	26 .04095 7.0	28 .04095 7.0	30 .04095 7.0	33 .04095 7.0	35 .04095 7.0

ra cada espaciamiento y carga se presenta : Altura (cm)
Volumen (M3)
Peso (Kg/m.l)

INFOR

DIMENSIONAMIENTO DE VIGAS LAMINADAS RECTAS

Ancho (cm) = 4.5
Luz (cm) = 400.

Espaciamiento (cm)

40	50	60	70	80	100	120	150	200	250	300
10 .01800 2.7	11 .01980 3.0	12 .02160 3.2	13 .02340 3.5	13 .02340 3.5	14 .02520 3.8	15 .02700 4.0	16 .02880 4.3	18 .03240 4.9	19 .03420 5.1	20 .03600 5.4
12 .02160 3.2	13 .02340 3.5	14 .02520 3.8	14 .02520 3.8	15 .02700 4.0	16 .02880 4.3	17 .03060 4.6	18 .03240 4.9	20 .03600 5.4	22 .03960 5.9	23 .04140 6.2
13 .02340 3.5	14 .02520 3.8	15 .02700 4.0	16 .02880 4.3	16 .02880 4.3	18 .03240 4.9	19 .03420 5.1	20 .03600 5.4	22 .03960 5.9	24 .04320 6.5	25 .04500 6.7
14 .02520 3.8	15 .02700 4.0	16 .02880 4.3	17 .03060 4.6	18 .03240 4.9	19 .03420 5.1	20 .03600 5.4	22 .03960 5.9	24 .04320 6.5	25 .04500 6.7	27 .04860 7.3
15 .02700 4.0	16 .02880 4.3	17 .03060 4.6	18 .03240 4.9	19 .03420 5.1	20 .03600 5.4	21 .03780 5.7	23 .04140 6.2	25 .04500 6.7	27 .04860 7.3	29 .04860 7.3
16 .02880 4.3	17 .03060 4.6	18 .03240 4.9	19 .03420 5.1	20 .03600 5.4	21 .03780 5.7	22 .03960 5.9	24 .04320 6.5	26 .04680 7.0	28 .04680 7.0	30 .04680 7.0
16 .02880 4.3	18 .03240 4.9	19 .03420 5.1	20 .03600 5.4	20 .03600 5.4	22 .03960 5.9	23 .04140 6.2	25 .04500 6.7	28 .04500 6.7	30 .04500 6.7	32 .04500 6.7
17 .03060 4.6	18 .03240 4.9	19 .03420 5.1	20 .03600 5.4	21 .03780 5.7	23 .04140 6.2	24 .04320 6.5	26 .04680 7.0	29 .04680 7.0	31 .04680 7.0	33 .04680 7.0
18 .03240 4.9	19 .03420 5.1	20 .03600 5.4	21 .03780 5.7	22 .03960 5.9	24 .04320 6.5	25 .04500 6.7	27 .04860 7.3	30 .04860 7.3	32 .04860 7.3	34 .04860 7.3
18 .03240 4.9	19 .03420 5.1	21 .03780 5.7	22 .03960 5.9	23 .04140 6.2	24 .04320 6.5	26 .04680 7.0	28 .04680 7.0	31 .04680 7.0	33 .04680 7.0	35 .04680 7.0
19 .03420 5.1	20 .03600 5.4	21 .03780 5.7	22 .03960 5.9	23 .04140 6.2	25 .04500 6.7	27 .04860 7.3	29 .04860 7.3	32 .04860 7.3	34 .04860 7.3	36 .04860 7.3
19 .03420 5.1	21 .03780 5.7	22 .03960 5.9	23 .04140 6.2	24 .04320 6.5	26 .04680 7.0	27 .04860 7.3	29 .04860 7.3	32 .04860 7.3	35 .04860 7.3	37 .04860 7.3
20 .03600 5.4	21 .03780 5.7	22 .03960 5.9	24 .04320 6.5	25 .04500 6.7	26 .04680 7.0	28 .04680 7.0	30 .04680 7.0	33 .04680 7.0	36 .04680 7.0	38 .04680 7.0
20 .03600 5.4	22 .03960 5.9	23 .04140 6.2	24 .04320 6.5	25 .04500 6.7	27 .04860 7.3	29 .04860 7.3	31 .04860 7.3	34 .04860 7.3	36 .04860 7.3	39 .04860 7.3
20 .03600 5.4	22 .03960 5.9	23 .04140 6.2	25 .04500 6.7	26 .04680 7.0	28 .04680 7.0	29 .04680 7.0	32 .04680 7.0	35 .04680 7.0	37 .04680 7.0	40 .04680 7.0

Para cada espaciamiento y carga se presenta : Altura (cm)
Volumen (M3)
Peso (Kg/m.l)

DIMENSIONAMIENTO DE VIGAS LAMINADAS RECTAS

Ancho (cm) = 4.5
Luz (cm) = 450.

a	Espaciamiento (cm)										
2	40	50	60	70	80	100	120	150	200	250	300
	12 .02430 3.2	13 .02632 3.5	13 .02632 3.5	14 .02835 3.8	15 .03037 4.0	16 .03240 4.3	17 .03442 4.6	18 .03645 4.9	20 .04050 5.4	21 .04252 5.7	22 .04455 5.9
	13 .02632 3.5	14 .02835 3.8	15 .03037 4.0	16 .03240 4.3	17 .03442 4.6	18 .03645 4.9	19 .03847 5.1	20 .04050 5.4	22 .04455 5.9	24 .04860 6.5	26 .05265 7.0
	15 .03037 4.0	16 .03240 4.3	17 .03442 4.6	18 .03645 4.9	18 .03645 4.9	20 .04050 5.4	21 .04252 5.7	22 .04455 5.9	25 .05062 6.7	27 .05467 7.3	28 .05467 7.3
	16 .03240 4.3	17 .03442 4.6	18 .03645 4.9	19 .03847 5.1	20 .04050 5.4	21 .04252 5.7	22 .04455 5.9	24 .04860 6.5	27 .05467 7.3	29 .05467 7.3	30 .05467 7.3
	17 .03442 4.6	18 .03645 4.9	19 .03847 5.1	20 .04050 5.4	21 .04252 5.7	22 .04455 5.9	24 .04860 6.5	26 .05265 7.0	28 .05265 7.0	30 .05265 7.0	32 .05265 7.0
	18 .03645 4.9	19 .03847 5.1	20 .04050 5.4	21 .04252 5.7	22 .04455 5.9	24 .04860 6.5	25 .05062 6.7	27 .05467 7.3	30 .05467 7.3	32 .05467 7.3	34 .05467 7.3
	18 .03645 4.9	20 .04050 5.4	21 .04252 5.7	22 .04455 5.9	23 .04657 6.2	25 .05062 6.7	26 .05265 7.0	28 .05265 7.0	31 .05265 7.0	33 .05265 7.0	35 .05265 7.0
	19 .03847 5.1	20 .04050 5.4	22 .04455 5.9	23 .04657 6.2	24 .04860 6.5	26 .05265 7.0	27 .05467 7.3	29 .05467 7.3	32 .05467 7.3	35 .05467 7.3	37 .05467 7.3
	20 .04050 5.4	21 .04252 5.7	22 .04455 5.9	24 .04860 6.5	25 .05062 6.7	27 .05467 7.3	28 .05467 7.3	30 .05467 7.3	33 .05467 7.3	36 .05467 7.3	38 .05467 7.3
	20 .04050 5.4	22 .04455 5.9	23 .04657 6.2	24 .04860 6.5	25 .05062 6.7	27 .05467 7.3	29 .05467 7.3	31 .05467 7.3	34 .05467 7.3	37 .05467 7.3	39 .05467 7.3
	21 .04252 5.7	22 .04455 5.9	24 .04860 6.5	25 .05062 6.7	26 .05265 7.0	28 .05265 7.0	30 .05265 7.0	32 .05265 7.0	35 .05265 7.0	38 .05265 7.0	40 .05265 7.0
	21 .04252 5.7	23 .04657 6.2	24 .04860 6.5	26 .05265 7.0	27 .05467 7.3	29 .05467 7.3	31 .05467 7.3	33 .05467 7.3	36 .05467 7.3	39 .05467 7.3	42 .05467 7.3
	22 .04455 5.9	24 .04860 6.5	25 .05062 6.7	26 .05265 7.0	28 .05265 7.0	30 .05265 7.0	31 .05265 7.0	34 .05265 7.0	37 .05265 7.0	40 .05265 7.0	43 .05265 7.0
	22 .04455 5.9	24 .04860 6.5	26 .05265 7.0	27 .05467 7.3	28 .05467 7.3	30 .05467 7.3	32 .05467 7.3	35 .05467 7.3	38 .05467 7.3	41 .05467 7.3	44 .05467 7.3
	23 .04657 6.2	25 .05062 6.7	26 .05265 7.0	28 .05265 7.0	29 .05265 7.0	31 .05[illegible] 7.0	33 .05265 7.0	35 .05265 7.0	39 .05265 7.0	42 .05265 7.0	44 .05265 7.0

Para cada espaciamiento y carga se presenta : Altura (cm)
Volumen (M3)
Peso (Kg/m.l)

INFOR

DIMENSIONAMIENTO DE VIGAS LAMINADAS RECTAS

Ancho (cm) = 4.5
Luz (cm) = 500.

Espaciamiento (cm)

40	50	60	70	80	100	120	150	200	250	300
13 .02925 3.5	14 .03150 3.8	15 .03375 4.0	16 .03600 4.3	16 .03600 4.3	17 .03825 4.6	18 .04050 4.9	20 .04500 5.4	22 .04950 5.9	23 .05175 6.2	25 .05625 6.7
15 .03375 4.0	16 .03600 4.3	17 .03825 4.6	18 .04050 4.9	18 .04050 4.9	20 .04500 5.4	21 .04725 5.7	23 .05175 6.2	25 .05625 6.7	27 .06075 7.3	28 .06075 7.3
16 .03600 4.3	17 .03825 4.6	18 .04050 4.9	19 .04275 5.1	20 .04500 5.4	22 .04950 5.9	23 .05175 6.2	25 .05625 6.7	27 .06075 7.3	29 .06075 7.3	31 .06075 7.3
17 .03825 4.6	19 .04275 5.1	20 .04500 5.4	21 .04725 5.7	22 .04950 5.9	23 .05175 6.2	25 .05625 6.7	27 .06075 7.3	29 .06075 7.3	32 .06075 7.3	34 .06075 7.3
18 .04050 4.9	20 .04500 5.4	21 .04725 5.7	22 .04950 5.9	23 .05175 6.2	25 .05625 6.7	26 .05850 7.0	28 .05850 7.0	31 .05850 7.0	34 .05850 7.0	36 .05850 7.0
19 .04275 5.1	21 .04725 5.7	22 .04950 5.9	23 .05175 6.2	24 .05400 6.5	26 .05850 7.0	28 .05850 7.0	30 .05850 7.0	33 .05850 7.0	35 .05850 7.0	38 .05850 7.0
20 .04500 5.4	22 .04950 5.9	23 .05175 6.2	24 .05400 6.5	25 .05625 6.7	27 .06075 7.3	29 .06075 7.3	31 .06075 7.3	34 .06075 7.3	37 .06075 7.3	39 .06075 7.3
21 .04725 5.7	23 .05175 6.2	24 .05400 6.5	25 .05625 6.7	26 .05850 7.0	28 .05850 7.0	30 .05850 7.0	33 .05850 7.0	36 .05850 7.0	38 .05850 7.0	41 .05850 7.0
22 .04950 5.9	23 .05175 6.2	25 .05625 6.7	26 .05850 7.0	27 .06075 7.3	29 .06075 7.3	31 .06075 7.3	34 .06075 7.3	37 .06075 7.3	40 .06075 7.3	42 .06075 7.3
23 .05175 6.2	24 .05400 6.5	26 .05850 7.0	27 .06075 7.3	28 .06075 7.3	30 .06075 7.3	32 .06075 7.3	35 .06075 7.3	38 .06075 7.3	41 .06075 7.3	44 .06075 7.3
23 .05175 6.2	25 .05625 6.7	26 .05850 7.0	28 .05850 7.0	29 .05850 7.0	31 .05850 7.0	33 .05850 7.0	36 .05850 7.0	39 .05850 7.0	42 .05850 7.0	45 .05850 7.0
24 .05400 6.5	26 .05850 7.0	27 .06075 7.3	29 .06075 7.3	30 .06075 7.3	32 .06075 7.3	34 .06075 7.3	37 .06075 7.3	40 .06075 7.3	43 .06075 7.3	46 .06075 7.3
24 .05400 6.5	26 .05850 7.0	28 .05850 7.0	29 .05850 7.0	31 .05850 7.0	33 .05850 7.0	35 .05850 7.0	38 .05850 7.0	41 .05850 7.0	44 .05850 7.0	47 .05850 7.0
25 .05625 6.7	27 .06075 7.3	28 .06075 7.3	30 .06075 7.3	31 .06075 7.3	34 .06075 7.3	36 .06075 7.3	38 .06075 7.3	42 .06075 7.3	45 .06075 7.3	48 .06075 7.3
25 .05625 6.7	27 .06075 7.3	29 .06075 7.3	31 .06075 7.3	32 .06075 7.3	34 .06075 7.3	36 .06075 7.3	39 .06075 7.3	43 .06075 7.3	46 .06075 7.3	49 .06075 7.3

ara cada espaciamiento y carga se presenta : Altura (cm)
Volumen (M3)
Peso (Kg/m.l)

INFOR

DIMENSIONAMIENTO DE VIGAS LAMINADAS RECTAS

Ancho (cm) = 4.5
Luz (cm) = 550.

Espaciamiento (cm)

40	50	60	70	80	100	120	150	200	250	300
14 .03465 3.8	15 .03712 4.0	16 .03960 4.3	17 .04207 4.6	18 .04455 4.9	19 .04702 5.1	20 .04950 5.4	22 .05445 5.9	24 .05940 6.5	26 .06435 7.0	27 .06682 7.3
16 .03960 4.3	17 .04207 4.6	18 .04455 4.9	19 .04702 5.1	20 .04950 5.4	22 .05445 5.9	23 .05692 6.2	25 .06187 6.7	27 .06682 7.3	29 .06682 7.3	31 .06682 7.3
18 .04455 4.9	19 .04702 5.1	20 .04950 5.4	21 .05197 5.7	22 .05445 5.9	24 .05940 6.5	25 .06187 6.7	27 .06682 7.3	30 .06682 7.3	32 .06682 7.3	34 .06682 7.3
19 .04702 5.1	21 .05197 5.7	22 .05445 5.9	23 .05692 6.2	24 .05940 6.5	26 .06435 7.0	27 .06682 7.3	29 .06682 7.3	32 .06682 7.3	35 .06682 7.3	37 .06682 7.3
20 .04950 5.4	22 .05445 5.9	23 .05692 6.2	24 .05940 6.5	25 .06187 6.7	27 .06682 7.3	29 .06682 7.3	31 .06682 7.3	34 .06682 7.3	37 .06682 7.3	39 .06682 7.3
21 .05197 5.7	23 .05692 6.2	24 .05940 6.5	26 .06435 7.0	27 .06682 7.3	29 .06682 7.3	31 .06682 7.3	33 .06682 7.3	36 .06682 7.3	39 .06682 7.3	41 .06682 7.3
22 .05445 5.9	24 .05940 6.5	25 .06187 6.7	27 .06682 7.3	28 .06682 7.3	30 .06682 7.3	32 .06682 7.3	34 .06682 7.3	38 .06682 7.3	41 .06682 7.3	43 .06682 7.3
23 .05692 6.2	25 .06187 6.7	26 .06435 7.0	28 .06435 7.0	29 .06435 7.0	31 .06435 7.0	33 .06435 7.0	36 .06435 7.0	39 .06435 7.0	42 .06435 7.0	45 .06435 7.0
24 .05940 6.5	26 .06435 7.0	27 .06682 7.3	29 .06682 7.3	30 .06682 7.3	32 .06682 7.3	34 .06682 7.3	37 .06682 7.3	41 .06682 7.3	44 .06682 7.3	46 .06682 7.3
25 .06187 6.7	27 .06682 7.3	28 .06682 7.3	30 .06682 7.3	31 .06682 7.3	33 .06682 7.3	35 .06682 7.3	38 .06682 7.3	42 .06682 7.3	45 .06682 7.3	48 .06682 7.3
25 .06187 6.7	27 .06682 7.3	29 .06682 7.3	31 .06682 7.3	32 .06682 7.3	34 .06682 7.3	36 .06682 7.3	39 .06682 7.3	43 .06682 7.3	46 .06682 7.3	49 .06682 7.3
26 .06435 7.0	28 .06435 7.0	30 .06435 7.0	31 .06435 7.0	33 .06435 7.0	35 .06435 7.0	37 .06435 7.0	40 .06435 7.0	44 .06435 7.0	48 .06435 7.0	51 .06435 7.0
27 .06682 7.3	29 .06682 7.3	31 .06682 7.3	32 .06682 7.3	34 .06682 7.3	36 .06682 7.3	38 .06682 7.3	41 .06682 7.3	45 .06682 7.3	49 .06682 7.3	52 .06682 7.3
27 .06682 7.3	29 .06682 7.3	31 .06682 7.3	33 .06682 7.3	34 .06682 7.3	37 .06682 7.3	39 .06682 7.3	42 .06682 7.3	46 .06682 7.3	50 .06682 7.3	53 .06682 7.3
28 .06682 7.3	30 .06682 7.3	32 .06682 7.3	34 .06682 7.3	35 .06682 7.3	38 .06682 7.3	40 .06682 7.3	43 .06682 7.3	47 .06682 7.3	51 .06682 7.3	54 .06682 7.3

ara cada espaciamiento y carga se presenta : Altura (cm)
Volumen (M3)
Peso (Kg/m.l)

INFOR

DIMENSIONAMIENTO DE VIGAS LAMINADAS RECTAS

Ancho (cm) = 4.5
Luz (cm) = 600.

Espaciamiento (cm)

40	50	60	70	80	100	120	150	200	250	300
15 .04050 4.0	17 .04590 4.6	18 .04860 4.9	19 .05130 5.1	19 .05130 5.1	21 .05670 5.7	22 .05940 5.9	24 .06480 6.5	26 .07020 7.0	28 .07020 7.0	30 .07020 7.0
18 .04860 4.9	19 .05130 5.1	20 .05400 5.4	21 .05670 5.7	22 .05940 5.9	24 .06480 6.5	25 .06750 6.7	27 .07290 7.3	30 .07290 7.3	32 .07290 7.3	34 .07290 7.3
19 .05130 5.1	21 .05670 5.7	22 .05940 5.9	23 .06210 6.2	24 .06480 6.5	26 .07020 7.0	28 .07020 7.0	30 .07020 7.0	33 .07020 7.0	35 .07020 7.0	37 .07020 7.0
21 .05670 5.7	22 .05940 5.9	24 .06480 6.5	25 .06750 6.7	26 .07020 7.0	28 .07020 7.0	30 .07020 7.0	32 .07020 7.0	35 .07020 7.0	38 .07020 7.0	40 .07020 7.0
22 .05940 5.9	24 .06480 6.5	25 .06750 6.7	27 .07290 7.3	28 .07290 7.3	30 .07290 7.3	32 .07290 7.3	34 .07290 7.3	37 .07290 7.3	40 .07290 7.3	43 .07290 7.3
23 .06210 6.2	25 .06750 6.7	27 .07290 7.3	28 .07290 7.3	29 .07290 7.3	31 .07290 7.3	33 .07290 7.3	36 .07290 7.3	39 .07290 7.3	42 .07290 7.3	45 .07290 7.3
24 .06480 6.5	26 .07020 7.0	28 .07020 7.0	29 .07020 7.0	30 .07020 7.0	33 .07020 7.0	35 .07020 7.0	37 .07020 7.0	41 .07020 7.0	44 .07020 7.0	47 .07020 7.0
25 .06750 6.7	27 .07290 7.3	29 .07290 7.3	30 .07290 7.3	32 .07290 7.3	34 .07290 7.3	36 .07290 7.3	39 .07290 7.3	43 .07290 7.3	46 .07290 7.3	49 .07290 7.3
26 .07020 7.0	28 .07020 7.0	30 .07020 7.0	31 .07020 7.0	33 .07020 7.0	35 .07020 7.0	37 .07020 7.0	40 .07020 7.0	44 .07020 7.0	48 .07020 7.0	51 .07020 7.0
27 .07290 7.3	29 .07290 7.3	31 .07290 7.3	32 .07290 7.3	34 .07290 7.3	36 .07290 7.3	39 .07290 7.3	42 .07290 7.3	46 .07290 7.3	49 .07290 7.3	52 .07290 7.3
28 .07290 7.3	30 .07290 7.3	32 .07290 7.3	33 .07290 7.3	35 .07290 7.3	37 .07290 7.3	40 .07290 7.3	43 .07290 7.3	47 .07290 7.3	51 .07290 7.3	54 .07290 7.3
28 .07290 7.3	31 .07290 7.3	32 .07290 7.3	34 .07290 7.3	36 .07290 7.3	38 .07290 7.3	41 .07290 7.3	44 .07290 7.3	48 .07290 7.3	52 .07290 7.3	55 .07290 7.3
29 .07290 7.3	31 .07290 7.3	33 .07290 7.3	35 .07290 7.3	37 .07290 7.3	39 .07290 7.3	42 .07290 7.3	45 .07290 7.3	49 .07290 7.3	53 .07290 7.3	57 .07290 7.3
30 .07290 7.3	32 .07290 7.3	34 .07290 7.3	36 .07290 7.3	37 .07290 7.3	40 .07290 7.3	43 .07290 7.3	46 .07290 7.3	51 .07290 7.3	54 .07290 7.3	58 .07290 7.3
30 .07290 7.3	33 .07290 7.3	35 .07290 7.3	37 .07290 7.3	38 .07290 7.3	41 .07290 7.3	44 .07290 7.3	47 .07290 7.3	52 .07290 7.3	56 .07290 7.3	59 .07290 7.3

Para cada espaciamiento y carga se presenta : Altura (cm)
Volumen (M3)
Peso (Kg/m.l)

INFOR

DIMENSIONAMIENTO DE VIGAS LAMINADAS RECTAS

Ancho (cm) = 4.5
Luz (cm) = 650.

Espaciamiento (cm)

40	50	60	70	80	100	120	150	200	250	300
17 .04972 4.6	18 .05265 4.9	19 .05557 5.1	20 .05850 5.4	21 .06142 5.7	23 .06727 6.2	24 .07020 6.5	26 .07605 7.0	28 .07605 7.0	30 .07605 7.0	32 .07605 7.0
19 .05557 5.1	21 .06142 5.7	22 .06435 5.9	23 .06727 6.2	24 .07020 6.5	26 .07605 7.0	27 .07897 7.3	29 .07897 7.3	32 .07897 7.3	35 .07897 7.3	37 .07897 7.3
21 .06142 5.7	23 .06727 6.2	24 .07020 6.5	25 .07312 6.7	26 .07605 7.0	28 .07605 7.0	30 .07605 7.0	32 .07605 7.0	35 .07605 7.0	38 .07605 7.0	41 .07605 7.0
23 .06727 6.2	24 .07020 6.5	26 .07605 7.0	27 .07897 7.3	28 .07897 7.3	30 .07897 7.3	32 .07897 7.3	35 .07897 7.3	38 .07897 7.3	41 .07897 7.3	44 .07897 7.3
24 .07020 6.5	26 .07605 7.0	27 .07897 7.3	29 .07897 7.3	30 .07897 7.3	32 .07897 7.3	34 .07897 7.3	37 .07897 7.3	41 .07897 7.3	44 .07897 7.3	46 .07897 7.3
25 .07312 6.7	27 .07897 7.3	29 .07897 7.3	30 .07897 7.3	32 .07897 7.3	34 .07897 7.3	36 .07897 7.3	39 .07897 7.3	43 .07897 7.3	46 .07897 7.3	49 .07897 7.3
26 .07605 7.0	28 .07605 7.0	30 .07605 7.0	32 .07605 7.0	33 .07605 7.0	35 .07605 7.0	38 .07605 7.0	41 .07605 7.0	45 .07605 7.0	48 .07605 7.0	51 .07605 7.0
27 .07897 7.3	29 .07897 7.3	31 .07897 7.3	33 .07897 7.3	34 .07897 7.3	37 .07897 7.3	39 .07897 7.3	42 .07897 7.3	46 .07897 7.3	50 .07897 7.3	53 .07897 7.3
28 .07897 7.3	30 .07897 7.3	32 .07897 7.3	34 .07897 7.3	35 .07897 7.3	38 .07897 7.3	41 .07897 7.3	44 .07897 7.3	48 .07897 7.3	52 .07897 7.3	55 .07897 7.3
29 .07897 7.3	31 .07897 7.3	33 .07897 7.3	35 .07897 7.3	37 .07897 7.3	39 .07897 7.3	42 .07897 7.3	45 .07897 7.3	49 .07897 7.3	53 .07897 7.3	57 .07897 7.3
30 .07897 7.3	32 .07897 7.3	34 .07897 7.3	36 .07897 7.3	38 .07897 7.3	41 .07897 7.3	43 .07897 7.3	46 .07897 7.3	51 .07897 7.3	55 .07897 7.3	58 .07897 7.3
31 .07897 7.3	33 .07897 7.3	35 .07897 7.3	37 .07897 7.3	39 .07897 7.3	42 .07897 7.3	44 .07897 7.3	48 .07897 7.3	52 .07897 7.3	56 .07897 7.3	60 .07897 7.3
32 .07897 7.3	34 .07897 7.3	36 .07897 7.3	38 .07897 7.3	40 .07897 7.3	43 .07897 7.3	45 .07897 7.3	49 .07897 7.3	54 .07897 7.3	58 .07897 7.3	61 .07897 7.3
32 .07897 7.3	35 .07897 7.3	37 .07897 7.3	39 .07897 7.3	41 .07897 7.3	44 .07897 7.3	46 .07897 7.3	50 .07897 7.3	55 .07897 7.3	59 .07897 7.3	63 .07897 7.3
33 .07897 7.3	35 .07897 7.3	38 .07897 7.3	40 .07897 7.3	41 .07897 7.3	45 .07897 7.3	47 .07897 7.3	51 .07897 7.3	56 .07897 7.3	60 .07897 7.3	64 .07897 7.3

Para cada espaciamiento y carga se presenta : Altura (cm)
Volumen (M3)
Peso (Kg/m.l)

INFOR

DIMENSIONAMIENTO DE VIGAS LAMINADAS RECTAS

Ancho (cm) = 4,5
Luz (cm) = 700.

Espaciamiento (cm)										
40	50	60	70	80	100	120	150	200	250	300
18 .05670 4.9	19 .05985 5.1	20 .06300 5.4	22 .06930 5.9	23 .07245 6.2	24 .07560 6.5	26 .08190 7.0	28 .08190 7.0	30 .08190 7.0	33 .08190 7.0	35 .08190 7.0
20 .06300 5.4	22 .06930 5.9	23 .07245 6.2	25 .07875 6.7	26 .08190 7.0	28 .08190 7.0	29 .08190 7.0	32 .08190 7.0	35 .08190 7.0	37 .08190 7.0	40 .08190 7.0
23 .07245 6.2	24 .07560 6.5	26 .08190 7.0	27 .08505 7.3	28 .08505 7.3	30 .08505 7.3	32 .08505 7.3	35 .08505 7.3	38 .08505 7.3	41 .08505 7.3	44 .08505 7.3
24 .07560 6.5	26 .08190 7.0	28 .08190 7.0	29 .08190 7.0	30 .08190 7.0	33 .08190 7.0	35 .08190 7.0	37 .08190 7.0	41 .08190 7.0	44 .08190 7.0	47 .08190 7.0
26 .08190 7.0	28 .08190 7.0	29 .08190 7.0	31 .08190 7.0	32 .08190 7.0	35 .08190 7.0	37 .08190 7.0	40 .08190 7.0	44 .08190 7.0	47 .08190 7.0	50 .08190 7.0
27 .08505 7.3	29 .08505 7.3	31 .08505 7.3	32 .08505 7.3	34 .08505 7.3	36 .08505 7.3	39 .08505 7.3	42 .08505 7.3	46 .08505 7.3	49 .08505 7.3	52 .08505 7.3
28 .08505 7.3	30 .08505 7.3	32 .08505 7.3	34 .08505 7.3	35 .08505 7.3	38 .08505 7.3	40 .08505 7.3	44 .08505 7.3	48 .08505 7.3	52 .08505 7.3	55 .08505 7.3
29 .08505 7.3	32 .08505 7.3	34 .08505 7.3	35 .08505 7.3	37 .08505 7.3	40 .08505 7.3	42 .08505 7.3	45 .08505 7.3	50 .08505 7.3	54 .08505 7.3	57 .08505 7.3
30 .08505 7.3	33 .08505 7.3	35 .08505 7.3	36 .08505 7.3	38 .08505 7.3	41 .08505 7.3	44 .08505 7.3	47 .08505 7.3	52 .08505 7.3	56 .08505 7.3	59 .08505 7.3
31 .08505 7.3	34 .08505 7.3	36 .08505 7.3	38 .08505 7.3	39 .08505 7.3	42 .08505 7.3	45 .08505 7.3	48 .08505 7.3	53 .08505 7.3	57 .08505 7.3	61 .08505 7.3
32 .08505 7.3	35 .08505 7.3	37 .08505 7.3	39 .08505 7.3	40 .08505 7.3	44 .08505 7.3	46 .08505 7.3	50 .08505 7.3	55 .08505 7.3	59 .08505 7.3	63 .08505 7.3
33 .08505 7.3	36 .08505 7.3	38 .08505 7.3	40 .08505 7.3	42 .08505 7.3	45 .08505 7.3	48 .08505 7.3	51 .08505 7.3	56 .08505 7.3	61 .08505 7.3	64 .08505 7.3
34 .08505 7.3	36 .08505 7.3	39 .08505 7.3	41 .08505 7.3	43 .08505 7.3	46 .08505 7.3	49 .08505 7.3	52 .08505 7.3	58 .08505 7.3	62 .08505 7.3	66 .08505 7.3
35 .08505 7.3	37 .08505 7.3	40 .08505 7.3	42 .08505 7.3	44 .08505 7.3	47 .08505 7.3	50 .08505 7.3	54 .08505 7.3	59 .08505 7.3	63 .08505 7.3	67 .08505 7.3
35 .08505 7.3	38 .08505 7.3	40 .08505 7.3	43 .08505 7.3	45 .08505 7.3	48 .08505 7.3	51 .08505 7.3	55 .08505 7.3	60 .08505 7.3	65 .08505 7.3	69 .08505 7.3

Para cada espaciamiento y carga se presenta : Altura (cm)
Volumen (M3)
Peso (Kg/m.l)

INFOR

DIMENSIONAMIENTO DE VIGAS LAMINADAS RECTAS

Ancho (cm) = 4.5
Luz (cm) = 750.

Espaciamiento (cm)

40	50	60	70	80	100	120	150	200	250	300
19 .06412 5.1	21 .07087 5.7	22 .07425 5.9	23 .07762 6.2	24 .08100 6.5	26 .08775 7.0	27 .09112 7.3	30 .09112 7.3	33 .09112 7.3	35 .09112 7.3	37 .09112 7.3
22 .07425 5.9	24 .08100 6.5	25 .08437 6.7	26 .08775 7.0	27 .09112 7.3	30 .09112 7.3	31 .09112 7.3	34 .09112 7.3	37 .09112 7.3	40 .09112 7.3	42 .09112 7.3
24 .08100 6.5	26 .08775 7.0	27 .09112 7.3	29 .09112 7.3	30 .09112 7.3	33 .09112 7.3	35 .09112 7.3	37 .09112 7.3	41 .09112 7.3	44 .09112 7.3	47 .09112 7.3
26 .08775 7.0	28 .08775 7.0	30 .08775 7.0	31 .08775 7.0	33 .08775 7.0	35 .08775 7.0	37 .08775 7.0	40 .08775 7.0	44 .08775 7.0	47 .08775 7.0	50 .08775 7.0
27 .09112 7.3	30 .09112 7.3	31 .09112 7.3	33 .09112 7.3	35 .09112 7.3	37 .09112 7.3	39 .09112 7.3	42 .09112 7.3	47 .09112 7.3	50 .09112 7.3	53 .09112 7.3
29 .09112 7.3	31 .09112 7.3	33 .09112 7.3	35 .09112 7.3	36 .09112 7.3	39 .09112 7.3	41 .09112 7.3	45 .09112 7.3	49 .09112 7.3	53 .09112 7.3	56 .09112 7.3
30 .09112 7.3	33 .09112 7.3	35 .09112 7.3	36 .09112 7.3	38 .09112 7.3	41 .09112 7.3	43 .09112 7.3	47 .09112 7.3	51 .09112 7.3	55 .09112 7.3	59 .09112 7.3
31 .09112 7.3	34 .09112 7.3	36 .09112 7.3	38 .09112 7.3	39 .09112 7.3	42 .09112 7.3	45 .09112 7.3	49 .09112 7.3	53 .09112 7.3	57 .09112 7.3	61 .09112 7.3
33 .09112 7.3	35 .09112 7.3	37 .09112 7.3	39 .09112 7.3	41 .09112 7.3	44 .09112 7.3	47 .09112 7.3	50 .09112 7.3	55 .09112 7.3	59 .09112 7.3	63 .09112 7.3
34 .09112 7.3	36 .09112 7.3	38 .09112 7.3	40 .09112 7.3	42 .09112 7.3	45 .09112 7.3	48 .09112 7.3	52 .09112 7.3	57 .09112 7.3	61 .09112 7.3	65 .09112 7.3
35 .09112 7.3	37 .09112 7.3	39 .09112 7.3	41 .09112 7.3	43 .09112 7.3	47 .09112 7.3	50 .09112 7.3	53 .09112 7.3	59 .09112 7.3	63 .09112 7.3	67 .09112 7.3
35 .09112 7.3	38 .09112 7.3	40 .09112 7.3	43 .09112 7.3	45 .09112 7.3	48 .09112 7.3	51 .09112 7.3	55 .09112 7.3	60 .09112 7.3	65 .09112 7.3	69 .09112 7.3
36 .09112 7.3	39 .09112 7.3	41 .09112 7.3	44 .09112 7.3	46 .09112 7.3	49 .09112 7.3	52 .09112 7.3	56 .09112 7.3	62 .09112 7.3	66 .09112 7.3	71 .09112 7.3
37 .09112 7.3	40 .09112 7.3	42 .09112 7.3	45 .09112 7.3	47 .09112 7.3	50 .09112 7.3	53 .09112 7.3	57 .09112 7.3	63 .09112 7.3	68 .09112 7.3	72 .09112 7.3
38 .09112 7.3	41 .09112 7.3	43 .09112 7.3	46 .09112 7.3	48 .09112 7.3	51 .09112 7.3	54 .09112 7.3	59 .09112 7.3	65 .09112 7.3	69 .09112 7.3	74 .09112 7.3

Para cada espaciamiento y carga se presenta : Altura (cm)
Volumen (M3)
Peso (Kg/m.l)

INFOR

DIMENSIONAMIENTO DE VIGAS LAMINADAS RECTAS

Ancho (cm) = 4.5
Luz (cm) = 800.

Espaciamiento (cm)										
40	50	60	70	80	100	120	150	200	250	300
20 .07200 5.4	22 .07920 5.9	23 .08280 6.2	25 .09000 6.7	26 .09360 7.0	28 .09360 7.0	29 .09360 7.0	32 .09360 7.0	35 .09360 7.0	37 .09360 7.0	40 .09360 7.0
23 .08280 6.2	25 .09000 6.7	27 .09720 7.3	28 .09720 7.3	29 .09720 7.3	32 .09720 7.3	33 .09720 7.3	36 .09720 7.3	40 .09720 7.3	43 .09720 7.3	45 .09720 7.3
26 .09360 7.0	28 .09360 7.0	29 .09360 7.0	31 .09360 7.0	32 .09360 7.0	35 .09360 7.0	37 .09360 7.0	40 .09360 7.0	44 .09360 7.0	47 .09360 7.0	50 .09360 7.0
28 .09360 7.0	30 .09360 7.0	32 .09360 7.0	33 .09360 7.0	35 .09360 7.0	37 .09360 7.0	40 .09360 7.0	43 .09360 7.0	47 .09360 7.0	50 .09360 7.0	54 .09360 7.0
29 .09360 7.0	32 .09360 7.0	33 .09360 7.0	35 .09360 7.0	37 .09360 7.0	40 .09360 7.0	42 .09360 7.0	45 .09360 7.0	50 .09360 7.0	54 .09360 7.0	57 .09360 7.0
31 .09360 7.0	33 .09360 7.0	35 .09360 7.0	37 .09360 7.0	39 .09360 7.0	42 .09360 7.0	44 .09360 7.0	48 .09360 7.0	52 .09360 7.0	56 .09360 7.0	60 .09360 7.0
32 .09360 7.0	35 .09360 7.0	37 .09360 7.0	39 .09360 7.0	40 .09360 7.0	44 .09360 7.0	46 .09360 7.0	50 .09360 7.0	55 .09360 7.0	59 .09360 7.0	63 .09360 7.0
33 .09360 7.0	36 .09360 7.0	38 .09360 7.0	40 .09360 7.0	42 .09360 7.0	45 .09360 7.0	48 .09360 7.0	52 .09360 7.0	57 .09360 7.0	61 .09360 7.0	65 .09360 7.0
35 .09360 7.0	37 .09360 7.0	40 .09360 7.0	42 .09360 7.0	44 .09360 7.0	47 .09360 7.0	50 .09360 7.0	54 .09360 7.0	59 .09360 7.0	63 .09360 7.0	67 .09360 7.0
36 .09360 7.0	38 .09360 7.0	41 .09360 7.0	43 .09360 7.0	45 .09360 7.0	48 .09360 7.0	51 .09360 7.0	55 .09360 7.0	61 .09360 7.0	65 .09360 7.0	69 .09360 7.0
37 .09360 7.0	40 .09360 7.0	42 .09360 7.0	44 .09360 7.0	46 .09360 7.0	50 .09360 7.0	53 .09360 7.0	57 .09360 7.0	63 .09360 7.0	67 .09360 7.0	72 .09360 7.0
38 .09360 7.0	41 .09360 7.0	43 .09360 7.0	45 .09360 7.0	47 .09360 7.0	51 .09360 7.0	54 .09360 7.0	58 .09360 7.0	64 .09360 7.0	69 .09360 7.0	73 .09360 7.0
39 .09360 7.0	42 .09360 7.0	44 .09360 7.0	47 .09360 7.0	49 .09360 7.0	52 .09360 7.0	56 .09360 7.0	60 .09360 7.0	66 .09360 7.0	71 .09360 7.0	75 .09360 7.0
40 .09360 7.0	43 .09360 7.0	45 .09360 7.0	48 .09360 7.0	50 .09360 7.0	54 .09360 7.0	57 .09360 7.0	61 .09360 7.0	67 .09360 7.0	72 .09360 7.0	77 .09360 7.0
40 .09360 7.0	44 .09360 7.0	46 .09360 7.0	49 .09360 7.0	51 .09360 7.0	55 .09360 7.0	58 .09360 7.0	63 .09360 7.0	69 .09360 7.0	74 .09360 7.0	79 .09360 7.0

ra cada espaciamiento y carga se presenta : Altura (cm)
Volumen (M3)
Peso (Kg/m.l)

INFOR

DIMENSIONAMIENTO DE VIGAS LAMINADAS RECTAS

Ancho (cm) = 4.5
Luz (cm) = 850.

Espaciamiento (cm)										
40	50	60	70	80	100	120	150	200	250	300
22 .08415 5.9	23 .08797 6.2	25 .09562 6.7	26 .09945 7.0	27 .10327 7.3	29 .10327 7.3	31 .10327 7.3	33 .10327 7.3	37 .10327 7.3	40 .10327 7.3	42 .10327 7.3
25 .09562 6.7	27 .10327 7.3	28 .10327 7.3	30 .10327 7.3	31 .10327 7.3	33 .10327 7.3	36 .10327 7.3	38 .10327 7.3	42 .10327 7.3	45 .10327 7.3	48 .10327 7.3
27 .10327 7.3	29 .10327 7.3	31 .10327 7.3	33 .10327 7.3	34 .10327 7.3	37 .10327 7.3	39 .10327 7.3	42 .10327 7.3	46 .10327 7.3	50 .10327 7.3	53 .10327 7.3
29 .10327 7.3	32 .10327 7.3	33 .10327 7.3	35 .10327 7.3	37 .10327 7.3	40 .10327 7.3	42 .10327 7.3	45 .10327 7.3	50 .10327 7.3	54 .10327 7.3	57 .10327 7.3
31 .10327 7.3	33 .10327 7.3	36 .10327 7.3	37 .10327 7.3	39 .10327 7.3	42 .10327 7.3	45 .10327 7.3	48 .10327 7.3	53 .10327 7.3	57 .10327 7.3	60 .10327 7.3
33 .10327 7.3	35 .10327 7.3	37 .10327 7.3	39 .10327 7.3	41 .10327 7.3	44 .10327 7.3	47 .10327 7.3	51 .10327 7.3	56 .10327 7.3	60 .10327 7.3	64 .10327 7.3
34 .10327 7.3	37 .10327 7.3	39 .10327 7.3	41 .10327 7.3	43 .10327 7.3	46 .10327 7.3	49 .10327 7.3	53 .10327 7.3	58 .10327 7.3	63 .10327 7.3	66 .10327 7.3
36 .10327 7.3	38 .10327 7.3	41 .10327 7.3	43 .10327 7.3	45 .10327 7.3	48 .10327 7.3	51 .10327 7.3	55 .10327 7.3	60 .10327 7.3	65 .10327 7.3	69 .10327 7.3
37 .10327 7.3	40 .10327 7.3	42 .10327 7.3	44 .10327 7.3	46 .10327 7.3	50 .10327 7.3	53 .10327 7.3	57 .10327 7.3	63 .10327 7.3	67 .10327 7.3	71 .10327 7.3
38 .10327 7.3	41 .10327 7.3	43 .10327 7.3	46 .10327 7.3	48 .10327 7.3	51 .10327 7.3	55 .10327 7.3	59 .10327 7.3	65 .10327 7.3	69 .10327 7.3	74 .10327 7.3
39 .10327 7.3	42 .10327 7.3	45 .10327 7.3	47 .10327 7.3	49 .10327 7.3	53 .10327 7.3	56 .10327 7.3	60 .10327 7.3	66 .10327 7.3	71 .10327 7.3	76 .10327 7.3
40 .10327 7.3	43 .10327 7.3	46 .10327 7.3	48 .10327 7.3	50 .10327 7.3	54 .10327 7.3	58 .10327 7.3	62 .10327 7.3	68 .10327 7.3	73 .10327 7.3	78 .10327 7.3
41 .10327 7.3	44 .10327 7.3	47 .10327 7.3	49 .10327 7.3	52 .10327 7.3	56 .10327 7.3	59 .10327 7.3	64 .10327 7.3	70 .10327 7.3	75 .10327 7.3	80 .10327 7.3
42 .10327 7.3	45 .10327 7.3	48 .10327 7.3	51 .10327 7.3	53 .10327 7.3	57 .10327 7.3	60 .10327 7.3	65 .10327 7.3	71 .10327 7.3	77 .10327 7.3	82 .10327 7.3
43 .10327 7.3	46 .10327 7.3	49 .10327 7.3	52 .10327 7.3	54 .10327 7.3	58 .10327 7.3	62 .10327 7.3	66 .10327 7.3	73 .10327 7.3	79 .10327 7.3	84 .10327 7.3

Para cada espaciamiento y carga se presenta : Altura (cm)
Volumen (M3)
Peso (Kg/m.l)

INFOR

BIBLIOTECA
INSTITUTO FORESTAL

DIMENSIONAMIENTO DE VIGAS LAMINADAS RECTAS

Ancho (cm) = 4.5
Luz (cm) = 900.

Espaciamiento (cm)										
40	50	60	70	80	100	120	150	200	250	300
23 .09315 6.2	25 .10125 6.7	26 .10530 7.0	28 .10530 7.0	29 .10530 7.0	31 .10530 7.0	33 .10530 7.0	35 .10530 7.0	39 .10530 7.0	42 .10530 7.0	44 .10530 7.0
26 .10530 7.0	28 .10530 7.0	30 .10530 7.0	31 .10530 7.0	33 .10530 7.0	35 .10530 7.0	38 .10530 7.0	40 .10530 7.0	44 .10530 7.0	48 .10530 7.0	51 .10530 7.0
29 .10530 7.0	31 .10530 7.0	33 .10530 7.0	35 .10530 7.0	36 .10530 7.0	39 .10530 7.0	41 .10530 7.0	44 .10530 7.0	49 .10530 7.0	53 .10530 7.0	56 .10530 7.0
31 .10530 7.0	33 .10530 7.0	35 .10530 7.0	37 .10530 7.0	39 .10530 7.0	42 .10530 7.0	44 .10530 7.0	48 .10530 7.0	53 .10530 7.0	57 .10530 7.0	60 .10530 7.0
33 .10530 7.0	35 .10530 7.0	38 .10530 7.0	40 .10530 7.0	41 .10530 7.0	44 .10530 7.0	47 .10530 7.0	51 .10530 7.0	56 .10530 7.0	60 .10530 7.0	64 .10530 7.0
35 .10530 7.0	37 .10530 7.0	40 .10530 7.0	42 .10530 7.0	43 .10530 7.0	47 .10530 7.0	50 .10530 7.0	53 .10530 7.0	59 .10530 7.0	63 .10530 7.0	67 .10530 7.0
36 .10530 7.0	39 .10530 7.0	41 .10530 7.0	43 .10530 7.0	45 .10530 7.0	49 .10530 7.0	52 .10530 7.0	56 .10530 7.0	61 .10530 7.0	66 .10530 7.0	70 .10530 7.0
38 .10530 7.0	40 .10530 7.0	43 .10530 7.0	45 .10530 7.0	47 .10530 7.0	51 .10530 7.0	54 .10530 7.0	58 .10530 7.0	64 .10530 7.0	69 .10530 7.0	73 .10530 7.0
39 .10530 7.0	42 .10530 7.0	44 .10530 7.0	47 .10530 7.0	49 .10530 7.0	53 .10530 7.0	56 .10530 7.0	60 .10530 7.0	66 .10530 7.0	71 .10530 7.0	76 .10530 7.0
40 .10530 7.0	43 .10530 7.0	46 .10530 7.0	48 .10530 7.0	50 .10530 7.0	54 .10530 7.0	58 .10530 7.0	62 .10530 7.0	68 .10530 7.0	74 .10530 7.0	78 .10530 7.0
41 .10530 7.0	44 .10530 7.0	47 .10530 7.0	50 .10530 7.0	52 .10530 7.0	56 .10530 7.0	59 .10530 7.0	64 .10530 7.0	70 .10530 7.0	76 .10530 7.0	80 .10530 7.0
42 .10530 7.0	46 .10530 7.0	48 .10530 7.0	51 .10530 7.0	53 .10530 7.0	57 .10530 7.0	61 .10530 7.0	66 .10530 7.0	72 .10530 7.0	78 .10530 7.0	83 .10530 7.0
43 .10530 7.0	47 .10530 7.0	50 .10530 7.0	52 .10530 7.0	55 .10530 7.0	59 .10530 7.0	62 .10530 7.0	67 .10530 7.0	74 .10530 7.0	80 .10530 7.0	85 .10530 7.0
44 .10530 7.0	48 .10530 7.0	51 .10530 7.0	53 .10530 7.0	56 .10530 7.0	60 .10530 7.0	64 .10530 7.0	69 .10530 7.0	76 .10530 7.0	81 .10530 7.0	87 .10530 7.0
45 .10530 7.0	49 .10530 7.0	52 .10530 7.0	55 .10530 7.0	57 .10530 7.0	61 .10530 7.0	65 .10530 7.0	70 .10530 7.0	77 .10530 7.0	83 .10530 7.0	88 .10530 7.0

Para cada espaciamiento y carga se presenta : Altura (cm)
Volumen (M3)
Peso (Kg/m.l)

INFOR

DIMENSIONAMIENTO DE VIGAS LAMINADAS RECTAS

Ancho (cm) = 5.0
Luz (cm) = 300.

Carga /M2	Espaciamiento (cm) 40	50	60	70	80	100	120	150	200	250	300
	9 .01350 2.7	9 .01350 2.7	9 .01350 2.7	9 .01350 2.7	10 .01500 3.0	10 .01500 3.0	11 .01650 3.3	12 .01800 3.6	13 .01950 3.9	14 .02100 4.2	15 .02250 4.5
	9 .01350 2.7	9 .01350 2.7	10 .01500 3.0	10 .01500 3.0	11 .01650 3.3	12 .01800 3.6	12 .01800 3.6	13 .01950 3.9	15 .02250 4.5	16 .02400 4.8	17 .02550 5.1
	10 .01500 3.0	10 .01500 3.0	11 .01650 3.3	11 .01650 3.3	12 .01800 3.6	13 .01950 3.9	14 .02100 4.2	15 .02250 4.5	16 .02400 4.8	17 .02550 5.1	18 .02700 5.4
	10 .01500 3.0	11 .01650 3.3	12 .01800 3.6	12 .01800 3.6	13 .01950 3.9	14 .02100 4.2	15 .02250 4.5	16 .02400 4.8	17 .02550 5.1	19 .02850 5.7	20 .03000 6.0
	11 .01650 3.3	12 .01800 3.6	12 .01800 3.6	13 .01950 3.9	14 .02100 4.2	15 .02250 4.5	16 .02400 4.8	17 .02550 5.1	18 .02700 5.4	20 .03000 6.0	21 .03150 6.3
	11 .01650 3.3	12 .01800 3.6	13 .01950 3.9	14 .02100 4.2	14 .02100 4.2	15 .02250 4.5	16 .02400 4.8	18 .02700 5.4	19 .02850 5.7	21 .03150 6.3	22 .03300 6.6
	12 .01800 3.6	13 .01950 3.9	14 .02100 4.2	14 .02100 4.2	15 .02250 4.5	16 .02400 4.8	17 .02550 5.1	18 .02700 5.4	20 .03000 6.0	22 .03300 6.6	23 .03450 6.9
	12 .01800 3.6	13 .01950 3.9	14 .02100 4.2	15 .02250 4.5	16 .02400 4.8	17 .02550 5.1	18 .02700 5.4	19 .02850 5.7	21 .03150 6.3	22 .03300 6.6	24 .03600 7.2
	13 .01950 3.9	14 .02100 4.2	15 .02250 4.5	15 .02250 4.5	16 .02400 4.8	17 .02550 5.1	18 .02700 5.4	20 .03000 6.0	22 .03300 6.6	23 .03450 6.9	25 .03750 7.5
	13 .01950 3.9	14 .02100 4.2	15 .02250 4.5	16 .02400 4.8	17 .02550 5.1	18 .02700 5.4	19 .02850 5.7	20 .03000 6.0	22 .03300 6.6	24 .03600 7.2	25 .03750 7.5
	14 .02100 4.2	15 .02250 4.5	16 .02400 4.8	16 .02400 4.8	17 .02550 5.1	18 .02700 5.4	19 .02850 5.7	21 .03150 6.3	23 .03450 6.9	25 .03750 7.5	26 .03900 7.8
	14 .02100 4.2	15 .02250 4.5	16 .02400 4.8	17 .02550 5.1	17 .02550 5.1	19 .02850 5.7	20 .03000 6.0	21 .03150 6.3	24 .03600 7.2	25 .03750 7.5	27 .04050 8.1
	14 .02100 4.2	15 .02250 4.5	16 .02400 4.8	17 .02550 5.1	18 .02700 5.4	19 .02850 5.7	20 .03000 6.0	22 .03300 6.6	24 .03600 7.2	26 .03900 7.8	28 .04200 8.4
	15 .02250 4.5	16 .02400 4.8	17 .02550 5.1	18 .02700 5.4	18 .02700 5.4	20 .03000 6.0	21 .03150 6.3	22 .03300 6.6	25 .03750 7.5	27 .04050 8.1	28 .04200 8.4
	15 .02250 4.5	16 .02400 4.8	17 .02550 5.1	18 .02700 5.4	19 .02850 5.7	20 .03000 6.0	21 .03150 6.3	23 .03450 6.9	25 .03750 7.5	27 .04050 8.1	29 .04350 8.7

Para cada espaciamiento y carga se presenta : Altura (cm)
Volumen (M3)
Peso (Kg/m.l)

INFOR

DIMENSIONAMIENTO DE VIGAS LAMINADAS RECTAS

Ancho (cm) = 5.0
Luz (cm) = 350.

Espaciamiento (cm)										
40	50	60	70	80	100	120	150	200	250	300
9 .01575 2.7	10 .01750 3.0	10 .01750 3.0	11 .01925 3.3	11 .01925 3.3	12 .02100 3.6	13 .02275 3.9	14 .02450 4.2	15 .02625 4.5	16 .02800 4.8	17 .02975 5.1
10 .01750 3.0	11 .01925 3.3	12 .02100 3.6	12 .02100 3.6	13 .02275 3.9	14 .02450 4.2	14 .02450 4.2	15 .02625 4.5	17 .02975 5.1	18 .03150 5.4	19 .03325 5.7
11 .01925 3.3	12 .02100 3.6	13 .02275 3.9	13 .02275 3.9	14 .02450 4.2	15 .02625 4.5	16 .02800 4.8	17 .02975 5.1	19 .03325 5.7	20 .03500 6.0	21 .03675 6.3
12 .02100 3.6	13 .02275 3.9	14 .02450 4.2	14 .02450 4.2	15 .02625 4.5	16 .02800 4.8	17 .02975 5.1	18 .03150 5.4	20 .03500 6.0	22 .03850 6.6	23 .04025 6.9
13 .02275 3.9	14 .02450 4.2	14 .02450 4.2	15 .02625 4.5	16 .02800 4.8	17 .02975 5.1	18 .03150 5.4	19 .03325 5.7	21 .03675 6.3	23 .04025 6.9	24 .04200 7.2
13 .02275 3.9	14 .02450 4.2	15 .02625 4.5	16 .02800 4.8	17 .02975 5.1	18 .03150 5.4	19 .03325 5.7	20 .03500 6.0	22 .03850 6.6	24 .04200 7.2	26 .04550 7.8
14 .02450 4.2	15 .02625 4.5	16 .02800 4.8	17 .02975 5.1	17 .02975 5.1	19 .03325 5.7	20 .03500 6.0	21 .03675 6.3	23 .04025 6.9	25 .04375 7.5	27 .04725 8.1
14 .02450 4.2	15 .02625 4.5	16 .02800 4.8	17 .02975 5.1	18 .03150 5.4	19 .03325 5.7	21 .03675 6.3	22 .03850 6.6	24 .04200 7.2	26 .04550 7.8	28 .04900 8.4
15 .02625 4.5	16 .02800 4.8	17 .02975 5.1	18 .03150 5.4	19 .03325 5.7	20 .03500 6.0	21 .03675 6.3	23 .04025 6.9	25 .04375 7.5	27 .04725 8.1	29 .05075 8.7
15 .02625 4.5	17 .02975 5.1	18 .03150 5.4	18 .03150 5.4	19 .03325 5.7	21 .03675 6.3	22 .03850 6.6	24 .04200 7.2	26 .04550 7.8	28 .04900 8.4	30 .05250 9.0
16 .02800 4.8	17 .02975 5.1	18 .03150 5.4	19 .03325 5.7	20 .03500 6.0	21 .03675 6.3	23 .04025 6.9	24 .04200 7.2	27 .04725 8.1	29 .05075 8.7	30 .05250 9.0
16 .02800 4.8	17 .02975 5.1	19 .03325 5.7	19 .03325 5.7	20 .03500 6.0	22 .03850 6.6	23 .04025 6.9	25 .04375 7.5	27 .04725 8.1	29 .05075 8.7	31 .05075 8.7
17 .02975 5.1	18 .03150 5.4	19 .03325 5.7	20 .03500 6.0	21 .03675 6.3	22 .03850 6.6	24 .04200 7.2	26 .04550 7.8	28 .04900 8.4	30 .05250 9.0	32 .05250 9.0
17 .02975 5.1	18 .03150 5.4	19 .03325 5.7	20 .03500 6.0	21 .03675 6.3	23 .04025 6.9	24 .04200 7.2	26 .04550 7.8	29 .05075 8.7	31 .05075 8.7	33 .05075 8.7
17 .02975 5.1	19 .03325 5.7	20 .03500 6.0	21 .03675 6.3	22 .03850 6.6	23 .04025 6.9	25 .04375 7.5	27 .04725 8.1	29 .05075 8.7	32 .05075 8.7	34 .05075 8.7

Para cada espaciamiento y carga se presenta : Altura (cm)
Volumen (M3)
Peso (Kg/m.l)

INFOR

DIMENSIONAMIENTO DE VIGAS LAMINADAS RECTAS

Ancho (cm) = 5.0
Luz (cm) = 400.

Espaciamiento (cm)										
40	50	60	70	80	100	120	150	200	250	300
10 .02000 3.0	11 .02200 3.3	12 .02400 3.6	12 .02400 3.6	13 .02600 3.9	14 .02800 4.2	14 .02800 4.2	15 .03000 4.5	17 .03400 5.1	18 .03600 5.4	19 .03800 5.7
12 .02400 3.6	12 .02400 3.6	13 .02600 3.9	14 .02800 4.2	14 .02800 4.2	15 .03000 4.5	16 .03200 4.8	18 .03600 5.4	19 .03800 5.7	21 .04200 6.3	22 .04400 6.6
13 .02600 3.9	14 .02800 4.2	14 .02800 4.2	15 .03000 4.5	16 .03200 4.8	17 .03400 5.1	18 .03600 5.4	19 .03800 5.7	21 .04200 6.3	23 .04600 6.9	24 .04800 7.2
14 .02800 4.2	15 .03000 4.5	15 .03000 4.5	16 .03200 4.8	17 .03400 5.1	18 .03600 5.4	19 .03800 5.7	21 .04200 6.3	23 .04600 6.9	25 .05000 7.5	26 .05200 7.8
14 .02800 4.2	15 .03000 4.5	16 .03200 4.8	17 .03400 5.1	18 .03600 5.4	19 .03800 5.7	21 .04200 6.3	22 .04400 6.6	24 .04800 7.2	26 .05200 7.8	28 .05600 8.4
15 .03000 4.5	16 .03200 4.8	17 .03400 5.1	18 .03600 5.4	19 .03800 5.7	20 .04000 6.0	22 .04400 6.6	23 .04600 6.9	26 .05200 7.8	27 .05400 8.1	29 .05800 8.7
16 .03200 4.8	17 .03400 5.1	18 .03600 5.4	19 .03800 5.7	20 .04000 6.0	21 .04200 6.3	23 .04600 6.9	24 .04800 7.2	27 .05400 8.1	29 .05800 8.7	30 .06000 9.0
16 .03200 4.8	18 .03600 5.4	19 .03800 5.7	20 .04000 6.0	21 .04200 6.3	22 .04400 6.6	23 .04600 6.9	25 .05000 7.5	28 .05600 8.4	30 .06000 9.0	32 .06000 9.0
17 .03400 5.1	18 .03600 5.4	19 .03800 5.7	20 .04000 6.0	21 .04200 6.3	23 .04600 6.9	24 .04800 7.2	26 .05200 7.8	29 .05800 8.7	31 .05800 8.7	33 .05800 8.7
18 .03600 5.4	19 .03800 5.7	20 .04000 6.0	21 .04200 6.3	22 .04400 6.6	24 .04800 7.2	25 .05000 7.5	27 .05400 8.1	30 .06000 9.0	32 .06000 9.0	34 .06000 9.0
18 .03600 5.4	19 .03800 5.7	21 .04200 6.3	22 .04400 6.6	23 .04600 6.9	24 .04800 7.2	26 .05200 7.8	28 .05600 8.4	30 .06000 9.0	33 .06000 9.0	35 .06000 9.0
18 .03600 5.4	20 .04000 6.0	21 .04200 6.3	22 .04400 6.6	23 .04600 6.9	25 .05000 7.5	26 .05200 7.8	28 .05600 8.4	31 .05600 8.4	34 .05600 8.4	36 .05600 8.4
19 .03800 5.7	20 .04000 6.0	22 .04400 6.6	23 .04600 6.9	24 .04800 7.2	26 .05200 7.8	27 .05400 8.1	29 .05800 8.7	32 .05800 8.7	34 .05800 8.7	37 .05800 8.7
19 .03800 5.7	21 .04200 6.3	22 .04400 6.6	23 .04600 6.9	24 .04800 7.2	26 .05200 7.8	28 .05600 8.4	30 .06000 9.0	33 .06000 9.0	35 .06000 9.0	37 .06000 9.0
20 .04000 6.0	21 .04200 6.3	23 .04600 6.9	24 .04800 7.2	25 .05000 7.5	27 .05400 8.1	28 .05600 8.4	30 .06000 9.0	33 .06000 9.0	36 .06000 9.0	38 .06000 9.0

Para cada espaciamiento y carga se presenta : Altura (cm)
Volumen (M3)
Peso (Kg/m.l)

INFOR

DIMENSIONAMIENTO DE VIGAS LAMINADAS RECTAS

Ancho (cm) = 5.0
Luz (cm) = 450.

Espaciamiento (cm)

40	50	60	70	80	100	120	150	200	250	300
11 .02475 3.3	12 .02700 3.6	13 .02925 3.9	14 .03150 4.2	14 .03150 4.2	15 .03375 4.5	16 .03600 4.8	17 .03825 5.1	19 .04275 5.7	20 .04500 6.0	22 .04950 6.6
13 .02925 3.9	14 .03150 4.2	15 .03375 4.5	15 .03375 4.5	16 .03600 4.8	17 .03825 5.1	18 .04050 5.4	20 .04500 6.0	22 .04950 6.6	23 .05175 6.9	25 .05625 7.5
14 .03150 4.2	15 .03375 4.5	16 .03600 4.8	17 .03825 5.1	18 .04050 5.4	19 .04275 5.7	20 .04500 6.0	22 .04950 6.6	24 .05400 7.2	26 .05850 7.8	27 .06075 8.1
15 .03375 4.5	16 .03600 4.8	17 .03825 5.1	18 .04050 5.4	19 .04275 5.7	20 .04500 6.0	22 .04950 6.6	23 .05175 6.9	26 .05850 7.8	28 .06300 8.4	29 .06525 8.7
16 .03600 4.8	17 .03825 5.1	18 .04050 5.4	19 .04275 5.7	20 .04500 6.0	22 .04950 6.6	23 .05175 6.9	25 .05625 7.5	27 .06075 8.1	29 .06525 8.7	31 .06525 8.7
17 .03825 5.1	18 .04050 5.4	19 .04275 5.7	20 .04500 6.0	21 .04725 6.3	23 .05175 6.9	24 .05400 7.2	26 .05850 7.8	29 .06525 8.7	31 .06525 8.7	33 .06525 8.7
18 .04050 5.4	19 .04275 5.7	20 .04500 6.0	21 .04725 6.3	22 .04950 6.6	24 .05400 7.2	25 .05625 7.5	27 .06075 8.1	30 .06750 9.0	32 .06750 9.0	34 .06750 9.0
18 .04050 5.4	20 .04500 6.0	21 .04725 6.3	22 .04950 6.6	23 .05175 6.9	25 .05625 7.5	26 .05850 7.8	28 .06300 8.4	31 .06300 8.4	33 .06300 8.4	36 .06300 8.4
19 .04275 5.7	20 .04500 6.0	22 .04950 6.6	23 .05175 6.9	24 .05400 7.2	26 .05850 7.8	27 .06075 8.1	29 .06525 8.7	32 .06525 8.7	35 .06525 8.7	37 .06525 8.7
20 .04500 6.0	21 .04725 6.3	22 .04950 6.6	24 .05400 7.2	25 .05625 7.5	26 .05850 7.8	28 .06300 8.4	30 .06750 9.0	33 .06750 9.0	36 .06750 9.0	38 .06750 9.0
20 .04500 6.0	22 .04950 6.6	23 .05175 6.9	24 .05400 7.2	25 .05625 7.5	27 .06075 8.1	29 .06525 8.7	31 .06525 8.7	34 .06525 8.7	37 .06525 8.7	39 .06525 8.7
21 .04725 6.3	22 .04950 6.6	24 .05400 7.2	25 .05625 7.5	26 .05850 7.8	28 .06300 8.4	30 .06750 9.0	32 .06750 9.0	35 .06750 9.0	38 .06750 9.0	40 .06750 9.0
21 .04725 6.3	23 .05175 6.9	24 .05400 7.2	25 .05625 7.5	27 .06075 8.1	29 .06525 8.7	30 .06750 9.0	33 .06750 9.0	36 .06750 9.0	39 .06750 9.0	41 .06750 9.0
22 .04950 6.6	23 .05175 6.9	25 .05625 7.5	26 .05850 7.8	27 .06075 8.1	29 .06525 8.7	31 .06525 8.7	33 .06525 8.7	37 .06525 8.7	40 .06525 8.7	42 .06525 8.7
22 .04950 6.6	24 .05400 7.2	25 .05625 7.5	27 .06075 8.1	28 .06300 8.4	30 .06750 9.0	32 .06750 9.0	34 .06750 9.0	38 .06750 9.0	40 .06750 9.0	43 .06750 9.0

ara cada espaciamiento y carga se presenta : Altura (cm)
Volumen (M3)
Peso (Kg/m.l)

INFOR

DIMENSIONAMIENTO DE VIGAS LAMINADAS RECTAS

Ancho (cm) = 5.0
Luz (cm) = 500.

Espaciamiento (cm)										
40	50	60	70	80	100	120	150	200	250	300
13 .03250 3.9	13 .03250 3.9	14 .03500 4.2	15 .03750 4.5	16 .04000 4.8	17 .04250 5.1	18 .04500 5.4	19 .04750 5.7	21 .05250 6.3	23 .05750 6.9	24 .06000 7.2
14 .03500 4.2	15 .03750 4.5	16 .04000 4.8	17 .04250 5.1	18 .04500 5.4	19 .04750 5.7	20 .05000 6.0	22 .05500 6.6	24 .06000 7.2	26 .06500 7.8	27 .06750 8.1
16 .04000 4.8	17 .04250 5.1	18 .04500 5.4	19 .04750 5.7	20 .05000 6.0	21 .05250 6.3	22 .05500 6.6	24 .06000 7.2	26 .06500 7.8	28 .07000 8.4	30 .07500 9.0
17 .04250 5.1	18 .04500 5.4	19 .04750 5.7	20 .05000 6.0	21 .05250 6.3	23 .05750 6.9	24 .06000 7.2	26 .06500 7.8	28 .07000 8.4	31 .07000 8.4	33 .07000 8.4
18 .04500 5.4	19 .04750 5.7	20 .05000 6.0	21 .05250 6.3	22 .05500 6.6	24 .06000 7.2	26 .06500 7.8	27 .06750 8.1	30 .07500 9.0	33 .07500 9.0	35 .07500 9.0
19 .04750 5.7	20 .05000 6.0	21 .05250 6.3	23 .05750 6.9	24 .06000 7.2	25 .06250 7.5	27 .06750 8.1	29 .07250 8.7	32 .07250 8.7	34 .07250 8.7	36 .07250 8.7
20 .05000 6.0	21 .05250 6.3	22 .05500 6.6	24 .06000 7.2	25 .06250 7.5	26 .06500 7.8	28 .07000 8.4	30 .07500 9.0	33 .07500 9.0	36 .07500 9.0	38 .07500 9.0
20 .05000 6.0	22 .05500 6.6	23 .05750 6.9	24 .06000 7.2	26 .06500 7.8	27 .06750 8.1	29 .07250 8.7	31 .07250 8.7	35 .07250 8.7	37 .07250 8.7	39 .07250 8.7
21 .05250 6.3	23 .05750 6.9	24 .06000 7.2	25 .06250 7.5	26 .06500 7.8	28 .07000 8.4	30 .07500 9.0	33 .07500 9.0	36 .07500 9.0	38 .07500 9.0	41 .07500 9.0
22 .05500 6.6	23 .05750 6.9	25 .06250 7.5	26 .06500 7.8	27 .06750 8.1	29 .07250 8.7	31 .07250 8.7	34 .07250 8.7	37 .07250 8.7	40 .07250 8.7	42 .07250 8.7
22 .05500 6.6	24 .06000 7.2	26 .06500 7.8	27 .06750 8.1	28 .07000 8.4	30 .07500 9.0	32 .07500 9.0	35 .07500 9.0	38 .07500 9.0	41 .07500 9.0	43 .07500 9.0
23 .05750 6.9	25 .06250 7.5	26 .06500 7.8	28 .07000 8.4	29 .07250 8.7	31 .07250 8.7	33 .07250 8.7	35 .07250 8.7	39 .07250 8.7	42 .07250 8.7	45 .07250 8.7
24 .06000 7.2	25 .06250 7.5	27 .06750 8.1	28 .07000 8.4	30 .07500 9.0	32 .07500 9.0	34 .07500 9.0	36 .07500 9.0	40 .07500 9.0	43 .07500 9.0	46 .07500 9.0
24 .06000 7.2	26 .06500 7.8	27 .06750 8.1	29 .07250 8.7	30 .07500 9.0	33 .07500 9.0	35 .07500 9.0	37 .07500 9.0	41 .07500 9.0	44 .07500 9.0	47 .07500 9.0
25 .06250 7.5	26 .06500 7.8	28 .07000 8.4	30 .07500 9.0	31 .07500 9.0	33 .07500 9.0	35 .07500 9.0	38 .07500 9.0	42 .07500 9.0	45 .07500 9.0	48 .07500 9.0

Para cada espaciamiento y carga se presenta : Altura (cm)
Volumen (M3)
Peso (Kg/m.l)

INFOR

DIMENSIONAMIENTO DE VIGAS LAMINADAS RECTAS

Ancho (cm) = 5.0
Luz (cm) = 550.

Espaciamiento (cm)										
40	50	60	70	80	100	120	150	200	250	300
14 .03850 4.2	15 .04125 4.5	16 .04400 4.8	16 .04400 4.8	17 .04675 5.1	18 .04950 5.4	20 .05500 6.0	21 .05775 6.3	23 .06325 6.9	25 .06875 7.5	26 .07150 7.8
16 .04400 4.8	17 .04675 5.1	18 .04950 5.4	19 .05225 5.7	20 .05500 6.0	21 .05775 6.3	22 .06050 6.6	24 .06600 7.2	26 .07150 7.8	28 .07700 8.4	30 .08250 9.0
17 .04675 5.1	18 .04950 5.4	20 .05500 6.0	21 .05775 6.3	22 .06050 6.6	23 .06325 6.9	25 .06875 7.5	26 .07150 7.8	29 .07975 8.7	31 .07975 8.7	33 .07975 8.7
18 .04950 5.4	20 .05500 6.0	21 .05775 6.3	22 .06050 6.6	23 .06325 6.9	25 .06875 7.5	26 .07150 7.8	28 .07700 8.4	31 .07700 8.4	34 .07700 8.4	36 .07700 8.4
20 .05500 6.0	21 .05775 6.3	22 .06050 6.6	24 .06600 7.2	25 .06875 7.5	26 .07150 7.8	28 .07700 8.4	30 .08250 9.0	33 .08250 9.0	36 .08250 9.0	38 .08250 9.0
21 .05775 6.3	22 .06050 6.6	24 .06600 7.2	25 .06875 7.5	26 .07150 7.8	28 .07700 8.4	30 .08250 9.0	32 .08250 9.0	35 .08250 9.0	38 .08250 9.0	40 .08250 9.0
22 .06050 6.6	23 .06325 6.9	25 .06875 7.5	26 .07150 7.8	27 .07425 8.1	29 .07975 8.7	31 .07975 8.7	33 .07975 8.7	36 .07975 8.7	39 .07975 8.7	42 .07975 8.7
22 .06050 6.6	24 .06600 7.2	26 .07150 7.8	27 .07425 8.1	28 .07700 8.4	30 .08250 9.0	32 .08250 9.0	34 .08250 9.0	38 .08250 9.0	41 .08250 9.0	43 .08250 9.0
23 .06325 6.9	25 .06875 7.5	26 .07150 7.8	28 .07700 8.4	29 .07975 8.7	31 .07975 8.7	33 .07975 8.7	36 .07975 8.7	39 .07975 8.7	42 .07975 8.7	45 .07975 8.7
24 .06600 7.2	26 .07150 7.8	27 .07425 8.1	29 .07975 8.7	30 .08250 9.0	32 .08250 9.0	34 .08250 9.0	37 .08250 9.0	40 .08250 9.0	44 .08250 9.0	46 .08250 9.0
25 .06875 7.5	26 .07150 7.8	28 .07700 8.4	30 .08250 9.0	31 .08250 9.0	33 .08250 9.0	35 .08250 9.0	38 .08250 9.0	42 .08250 9.0	45 .08250 9.0	48 .08250 9.0
25 .06875 7.5	27 .07425 8.1	29 .07975 8.7	30 .08250 9.0	32 .08250 9.0	34 .08250 9.0	36 .08250 9.0	39 .08250 9.0	43 .08250 9.0	46 .08250 9.0	49 .08250 9.0
26 .07150 7.8	28 .07700 8.4	30 .08250 9.0	31 .08250 9.0	32 .08250 9.0	35 .08250 9.0	37 .08250 9.0	40 .08250 9.0	44 .08250 9.0	47 .08250 9.0	50 .08250 9.0
26 .07150 7.8	28 .07700 8.4	30 .08250 9.0	32 .08250 9.0	33 .08250 9.0	36 .08250 9.0	38 .08250 9.0	41 .08250 9.0	45 .08250 9.0	48 .08250 9.0	51 .08250 9.0
27 .07425 8.1	29 .07975 8.7	31 .07975 8.7	32 .07975 8.7	34 .07975 8.7	36 .07975 8.7	39 .07975 8.7	42 .07975 8.7	46 .07975 8.7	49 .07975 8.7	52 .07975 8.7

Para cada espaciamiento y carga se presenta : Altura (cm)
Volumen (M3)
Peso (Kg/m.l)

INFOR

DIMENSIONAMIENTO DE VIGAS LAMINADAS RECTAS

Ancho (cm) = 5.0
Luz (cm) = 600.

% M2	Espaciamiento (cm)										
	40	50	60	70	80	100	120	150	200	250	300
	15 .04500 4.5	16 .04800 4.8	17 .05100 5.1	18 .05400 5.4	19 .05700 5.7	20 .06000 6.0	21 .06300 6.3	23 .06900 6.9	25 .07500 7.5	27 .08100 8.1	29 .08700 8.7
	17 .05100 5.1	18 .05400 5.4	19 .05700 5.7	20 .06000 6.0	21 .06300 6.3	23 .06900 6.9	24 .07200 7.2	26 .07800 7.8	29 .08700 8.7	31 .08700 8.7	33 .08700 8.7
	19 .05700 5.7	20 .06000 6.0	21 .06300 6.3	22 .06600 6.6	23 .06900 6.9	25 .07500 7.5	27 .08100 8.1	29 .08700 8.7	32 .08700 8.7	34 .08700 8.7	36 .08700 8.7
	20 .06000 6.0	22 .06600 6.6	23 .06900 6.9	24 .07200 7.2	25 .07500 7.5	27 .08100 8.1	29 .08700 8.7	31 .08700 8.7	34 .08700 8.7	37 .08700 8.7	39 .08700 8.7
	21 .06300 6.3	23 .06900 6.9	24 .07200 7.2	26 .07800 7.8	27 .08100 8.1	29 .08700 8.7	31 .08700 8.7	33 .08700 8.7	36 .08700 8.7	39 .08700 8.7	41 .08700 8.7
	22 .06600 6.6	24 .07200 7.2	26 .07800 7.8	27 .08100 8.1	28 .08400 8.4	30 .09000 9.0	32 .09000 9.0	35 .09000 9.0	38 .09000 9.0	41 .09000 9.0	43 .09000 9.0
	23 .06900 6.9	25 .07500 7.5	27 .08100 8.1	28 .08400 8.4	29 .08700 8.7	32 .08700 8.7	34 .08700 8.7	36 .08700 8.7	40 .08700 8.7	43 .08700 8.7	45 .08700 8.7
	24 .07200 7.2	26 .07800 7.8	28 .08400 8.4	29 .08700 8.7	31 .08700 8.7	33 .08700 8.7	35 .08700 8.7	38 .08700 8.7	41 .08700 8.7	44 .08700 8.7	47 .08700 8.7
	25 .07500 7.5	27 .08100 8.1	29 .08700 8.7	30 .09000 9.0	32 .09000 9.0	34 .09000 9.0	36 .09000 9.0	39 .09000 9.0	43 .09000 9.0	46 .09000 9.0	49 .09000 9.0
	26 .07800 7.8	28 .08400 8.4	30 .09000 9.0	31 .09000 9.0	33 .09000 9.0	35 .09000 9.0	37 .09000 9.0	40 .09000 9.0	44 .09000 9.0	48 .09000 9.0	50 .09000 9.0
	27 .08100 8.1	29 .08700 8.7	31 .08700 8.7	32 .08700 8.7	34 .08700 8.7	36 .08700 8.7	38 .08700 8.7	41 .08700 8.7	45 .08700 8.7	49 .08700 8.7	52 .08700 8.7
	27 .08100 8.1	30 .09000 9.0	31 .09000 9.0	33 .09000 9.0	34 .09000 9.0	37 .09000 9.0	39 .09000 9.0	42 .09000 9.0	47 .09000 9.0	50 .09000 9.0	53 .09000 9.0
	28 .08400 8.4	30 .09000 9.0	32 .09000 9.0	34 .09000 9.0	35 .09000 9.0	38 .09000 9.0	40 .09000 9.0	43 .09000 9.0	48 .09000 9.0	51 .09000 9.0	55 .09000 9.0
	29 .08700 8.7	31 .08700 8.7	33 .08700 8.7	35 .08700 8.7	36 .08700 8.7	39 .08700 8.7	41 .08700 8.7	44 .08700 8.7	49 .08700 8.7	53 .08700 8.7	56 .08700 8.7
	29 .08700 8.7	32 .08700 8.7	34 .08700 8.7	35 .08700 8.7	37 .08700 8.7	40 .08700 8.7	42 .08700 8.7	45 .08700 8.7	50 .08700 8.7	54 .08700 8.7	57 .08700 8.7

Para cada espaciamiento y carga se presenta : Altura (cm)
Volumen (M3)
Peso (Kg/m.l)

INFOR

DIMENSIONAMIENTO DE VIGAS LAMINADAS RECTAS

Ancho (cm) = 5.0
Luz (cm) = 650.

Espaciamiento (cm)										
40	50	60	70	80	100	120	150	200	250	300
16 .05200 4.8	17 .05525 5.1	18 .05850 5.4	19 .06175 5.7	20 .06500 6.0	22 .07150 6.6	23 .07475 6.9	25 .08125 7.5	27 .08775 8.1	29 .09425 8.7	31 .09425 8.7
18 .05850 5.4	20 .06500 6.0	21 .06825 6.3	22 .07150 6.6	23 .07475 6.9	25 .08125 7.5	26 .08450 7.8	28 .09100 8.4	31 .09100 8.4	34 .09100 8.4	36 .09100 8.4
20 .06500 6.0	22 .07150 6.6	23 .07475 6.9	24 .07800 7.2	25 .08125 7.5	27 .08775 8.1	29 .09425 8.7	31 .09425 8.7	34 .09425 8.7	37 .09425 8.7	39 .09425 8.7
22 .07150 6.6	23 .07475 6.9	25 .08125 7.5	26 .08450 7.8	27 .08775 8.1	29 .09425 8.7	31 .09425 8.7	34 .09425 8.7	37 .09425 8.7	40 .09425 8.7	42 .09425 8.7
23 .07475 6.9	25 .08125 7.5	26 .08450 7.8	28 .09100 8.4	29 .09425 8.7	31 .09425 8.7	33 .09425 8.7	36 .09425 8.7	39 .09425 8.7	42 .09425 8.7	45 .09425 8.7
24 .07800 7.2	26 .08450 7.8	28 .09100 8.4	29 .09425 8.7	30 .09750 9.0	33 .09750 9.0	35 .09750 9.0	37 .09750 9.0	41 .09750 9.0	44 .09750 9.0	47 .09750 9.0
25 .08125 7.5	27 .08775 8.1	29 .09425 8.7	30 .09750 9.0	32 .09750 9.0	34 .09750 9.0	36 .09750 9.0	39 .09750 9.0	43 .09750 9.0	46 .09750 9.0	49 .09750 9.0
26 .08450 7.8	28 .09100 8.4	30 .09750 9.0	32 .09750 9.0	33 .09750 9.0	36 .09750 9.0	38 .09750 9.0	41 .09750 9.0	45 .09750 9.0	48 .09750 9.0	51 .09750 9.0
27 .08775 8.1	29 .09425 8.7	31 .09425 8.7	33 .09425 8.7	34 .09425 8.7	37 .09425 8.7	39 .09425 8.7	42 .09425 8.7	46 .09425 8.7	50 .09425 8.7	53 .09425 8.7
28 .09100 8.4	30 .09750 9.0	32 .09750 9.0	34 .09750 9.0	35 .09750 9.0	38 .09750 9.0	40 .09750 9.0	43 .09750 9.0	48 .09750 9.0	51 .09750 9.0	55 .09750 9.0
29 .09425 8.7	31 .09425 8.7	33 .09425 8.7	35 .09425 8.7	36 .09425 8.7	39 .09425 8.7	42 .09425 8.7	45 .09425 8.7	49 .09425 8.7	53 .09425 8.7	56 .09425 8.7
30 .09750 9.0	32 .09750 9.0	34 .09750 9.0	36 .09750 9.0	37 .09750 9.0	40 .09750 9.0	43 .09750 9.0	46 .09750 9.0	50 .09750 9.0	54 .09750 9.0	58 .09750 9.0
30 .09750 9.0	33 .09750 9.0	35 .09750 9.0	37 .09750 9.0	38 .09750 9.0	41 .09750 9.0	44 .09750 9.0	47 .09750 9.0	52 .09750 9.0	56 .09750 9.0	59 .09750 9.0
31 .09750 9.0	34 .09750 9.0	36 .09750 9.0	37 .09750 9.0	39 .09750 9.0	42 .09750 9.0	45 .09750 9.0	48 .09750 9.0	53 .09750 9.0	57 .09750 9.0	61 .09750 9.0
32 .09750 9.0	34 .09750 9.0	36 .09750 9.0	38 .09750 9.0	40 .09750 9.0	43 .09750 9.0	46 .09750 9.0	49 .09750 9.0	54 .09750 9.0	58 .09750 9.0	62 .09750 9.0

Para cada espaciamiento y carga se presenta : Altura (cm)
Volumen (M3)
Peso (Kg/m.l)

INFOR

DIMENSIONAMIENTO DE VIGAS LAMINADAS RECTAS

Ancho (cm) = 5.0
Luz (cm) = 700.

Espaciamiento (cm)

40	50	60	70	80	100	120	150	200	250	300
17 .05950 5.1	19 .06650 5.7	20 .07000 6.0	21 .07350 6.3	22 .07700 6.6	23 .08050 6.9	25 .08750 7.5	27 .09450 8.1	29 .10150 8.7	32 .10150 8.7	34 .10150 8.7
20 .07000 6.0	21 .07350 6.3	23 .08050 6.9	24 .08400 7.2	25 .08750 7.5	27 .09450 8.1	28 .09800 8.4	30 .10500 9.0	34 .10500 9.0	36 .10500 9.0	38 .10500 9.0
22 .07700 6.6	23 .08050 6.9	25 .08750 7.5	26 .09100 7.8	27 .09450 8.1	29 .10150 8.7	31 .10150 8.7	34 .10150 8.7	37 .10150 8.7	40 .10150 8.7	42 .10150 8.7
23 .08050 6.9	25 .08750 7.5	27 .09450 8.1	28 .09800 8.4	29 .10150 8.7	32 .10150 8.7	34 .10150 8.7	36 .10150 8.7	40 .10150 8.7	43 .10150 8.7	45 .10150 8.7
25 .08750 7.5	27 .09450 8.1	28 .09800 8.4	30 .10500 9.0	31 .10500 9.0	34 .10500 9.0	36 .10500 9.0	38 .10500 9.0	42 .10500 9.0	45 .10500 9.0	48 .10500 9.0
26 .09100 7.8	28 .09800 8.4	30 .10500 9.0	31 .10500 9.0	33 .10500 9.0	35 .10500 9.0	37 .10500 9.0	40 .10500 9.0	44 .10500 9.0	48 .10500 9.0	51 .10500 9.0
27 .09450 8.1	29 .10150 8.7	31 .10150 8.7	33 .10150 8.7	34 .10150 8.7	37 .10150 8.7	39 .10150 8.7	42 .10150 8.7	46 .10150 8.7	50 .10150 8.7	53 .10150 8.7
28 .09800 8.4	30 .10500 9.0	32 .10500 9.0	34 .10500 9.0	36 .10500 9.0	38 .10500 9.0	41 .10500 9.0	44 .10500 9.0	48 .10500 9.0	52 .10500 9.0	55 .10500 9.0
29 .10150 8.7	32 .10150 8.7	34 .10150 8.7	35 .10150 8.7	37 .10150 8.7	40 .10150 8.7	42 .10150 8.7	45 .10150 8.7	50 .10150 8.7	54 .10150 8.7	57 .10150 8.7
30 .10500 9.0	33 .10500 9.0	35 .10500 9.0	36 .10500 9.0	38 .10500 9.0	41 .10500 9.0	43 .10500 9.0	47 .10500 9.0	51 .10500 9.0	55 .10500 9.0	59 .10500 9.0
31 .10500 9.0	34 .10500 9.0	36 .10500 9.0	37 .10500 9.0	39 .10500 9.0	42 .10500 9.0	45 .10500 9.0	48 .10500 9.0	53 .10500 9.0	57 .10500 9.0	60 .10500 9.0
32 .10500 9.0	34 .10500 9.0	37 .10500 9.0	38 .10500 9.0	40 .10500 9.0	43 .10500 9.0	46 .10500 9.0	49 .10500 9.0	54 .10500 9.0	58 .10500 9.0	62 .10500 9.0
33 .10500 9.0	35 .10500 9.0	37 .10500 9.0	39 .10500 9.0	41 .10500 9.0	44 .10500 9.0	47 .10500 9.0	51 .10500 9.0	56 .10500 9.0	60 .10500 9.0	64 .10500 9.0
34 .10500 9.0	36 .10500 9.0	38 .10500 9.0	40 .10500 9.0	42 .10500 9.0	45 .10500 9.0	48 .10500 9.0	52 .10500 9.0	57 .10500 9.0	61 .10500 9.0	65 .10500 9.0
34 .10500 9.0	37 .10500 9.0	39 .10500 9.0	41 .10500 9.0	43 .10500 9.0	46 .10500 9.0	49 .10500 9.0	53 .10500 9.0	58 .10500 9.0	63 .10500 9.0	67 .10500 9.0

Para cada espaciamiento y carga se presenta : Altura (cm)
Volumen (M3)
Peso (Kg/m.l)

INFOR

DIMENSIONAMIENTO DE VIGAS LAMINADAS RECTAS

Ancho (cm) = 5.0
Luz (cm) = 750.

Espaciamiento (cm)

40	50	60	70	80	100	120	150	200	250	300
19 .07125 5.7	20 .07500 6.0	21 .07875 6.3	22 .08250 6.6	23 .08625 6.9	25 .09375 7.5	27 .10125 8.1	29 .10875 8.7	31 .10875 8.7	34 .10875 8.7	36 .10875 8.7
21 .07875 6.3	23 .08625 6.9	24 .09000 7.2	25 .09375 7.5	27 .10125 8.1	29 .10875 8.7	30 .11250 9.0	33 .11250 9.0	36 .11250 9.0	39 .11250 9.0	41 .11250 9.0
23 .08625 6.9	25 .09375 7.5	27 .10125 8.1	28 .10500 8.4	29 .10875 8.7	31 .10875 8.7	33 .10875 8.7	36 .10875 8.7	39 .10875 8.7	42 .10875 8.7	45 .10875 8.7
25 .09375 7.5	27 .10125 8.1	29 .10875 8.7	30 .11250 9.0	31 .11250 9.0	34 .11250 9.0	36 .11250 9.0	39 .11250 9.0	42 .11250 9.0	46 .11250 9.0	49 .11250 9.0
27 .10125 8.1	29 .10875 8.7	30 .11250 9.0	32 .11250 9.0	33 .11250 9.0	36 .11250 9.0	38 .11250 9.0	41 .11250 9.0	45 .11250 9.0	49 .11250 9.0	52 .11250 9.0
28 .10500 8.4	30 .11250 9.0	32 .11250 9.0	34 .11250 9.0	35 .11250 9.0	38 .11250 9.0	40 .11250 9.0	43 .11250 9.0	47 .11250 9.0	51 .11250 9.0	54 .11250 9.0
29 .10875 8.7	31 .10875 8.7	33 .10875 8.7	35 .10875 8.7	37 .10875 8.7	39 .10875 8.7	42 .10875 8.7	45 .10875 8.7	50 .10875 8.7	53 .10875 8.7	57 .10875 8.7
30 .11250 9.0	33 .11250 9.0	35 .11250 9.0	36 .11250 9.0	38 .11250 9.0	41 .11250 9.0	44 .11250 9.0	47 .11250 9.0	52 .11250 9.0	55 .11250 9.0	59 .11250 9.0
31 .11250 9.0	34 .11250 9.0	36 .11250 9.0	38 .11250 9.0	39 .11250 9.0	42 .11250 9.0	45 .11250 9.0	49 .11250 9.0	53 .11250 9.0	57 .11250 9.0	61 .11250 9.0
32 .11250 9.0	35 .11250 9.0	37 .11250 9.0	39 .11250 9.0	41 .11250 9.0	44 .11250 9.0	47 .11250 9.0	50 .11250 9.0	55 .11250 9.0	59 .11250 9.0	63 .11250 9.0
33 .11250 9.0	36 .11250 9.0	38 .11250 9.0	40 .11250 9.0	42 .11250 9.0	45 .11250 9.0	48 .11250 9.0	52 .11250 9.0	57 .11250 9.0	61 .11250 9.0	65 .11250 9.0
34 .11250 9.0	37 .11250 9.0	39 .11250 9.0	41 .11250 9.0	43 .11250 9.0	46 .11250 9.0	49 .11250 9.0	53 .11250 9.0	58 .11250 9.0	63 .11250 9.0	67 .11250 9.0
35 .11250 9.0	38 .11250 9.0	40 .11250 9.0	42 .11250 9.0	44 .11250 9.0	47 .11250 9.0	50 .11250 9.0	54 .11250 9.0	60 .11250 9.0	64 .11250 9.0	68 .11250 9.0
36 .11250 9.0	39 .11250 9.0	41 .11250 9.0	43 .11250 9.0	45 .11250 9.0	49 .11250 9.0	52 .11250 9.0	55 .11250 9.0	61 .11250 9.0	66 .11250 9.0	70 .11250 9.0
37 .11250 9.0	39 .11250 9.0	42 .11250 9.0	44 .11250 9.0	46 .11250 9.0	50 .11250 9.0	53 .11250 9.0	57 .11250 9.0	62 .11250 9.0	67 .11250 9.0	71 .11250 9.0

Para cada espaciamiento y carga se presenta : Altura (cm)
Volumen (M3)
Peso (Kg/m.l)

INFOR