ANEXO2

SOLUCIÓN DE CÁLCULO ESTRUCTURA CON ACERO S275

ÍNDICE

1.- GEOMETRÍA

1.1.- Nudos

Referencias:

Δ_x, Δ_y, Δ_z: Desplazamientos prescritos en ejes globales.

θ_x, θ_y, θ_z: Giros prescritos en ejes globales.

Cada grado de libertad se marca con 'X' si está coaccionado y, en caso contrario, con '-'.

Nudos										
Referencia	Coordenadas			Vinculación exterior						Vinculación interior
	X (m)	Y (m)	Z (m)	Δ_x	Δ_y	Δ_z	θ_x	θ_y	θ_z	
N1	-1.000	-5.000	0.000	-	-	-	-	-	-	Articulado
N2	-1.000	5.000	0.000	-	-	-	-	-	-	Articulado
N3	-3.000	-5.000	0.000	-	-	-	-	-	-	Articulado
N4	-3.000	5.000	0.000	-	-	-	-	-	-	Articulado
N5	-5.000	-3.000	0.000	-	-	-	-	-	-	Articulado
N6	-5.000	3.000	0.000	-	-	-	-	-	-	Articulado
N7	-1.000	-1.000	0.000	-	-	-	-	-	-	Articulado
N8	5.000	-1.000	0.000	-	-	-	-	-	-	Articulado
N9	-5.000	1.000	0.000	-	-	-	-	-	-	Articulado
N10	5.000	1.000	0.000	-	-	-	-	-	-	Articulado
N11	5.000	3.000	0.000	-	-	-	-	-	-	Articulado
N12	1.000	-5.000	0.000	-	-	-	-	-	-	Articulado
N13	1.000	5.000	0.000	-	-	-	-	-	-	Articulado
N14	3.000	-5.000	0.000	-	-	-	-	-	-	Articulado
N15	3.000	5.000	0.000	-	-	-	-	-	-	Articulado
N16	5.000	-3.000	0.000	-	-	-	-	-	-	Articulado
N17	-5.000	-1.000	0.000	-	-	-	-	-	-	Articulado
N18	0.000	-6.000	1.500	-	-	-	-	-	-	Articulado
N19	0.000	6.000	1.500	-	-	-	-	-	-	Articulado
N20	-2.000	-6.000	1.500	-	-	-	-	-	-	Articulado
N21	-2.000	6.000	1.500	-	-	-	-	-	-	Articulado
N22	-4.000	-4.000	1.500	-	-	-	-	-	-	Articulado
N23	-4.000	4.000	1.500	-	-	-	-	-	-	Articulado
N24	-6.000	-2.000	1.500	-	-	-	-	-	-	Articulado
N25	-6.000	2.000	1.500	-	-	-	-	-	-	Articulado
N26	0.000	0.000	1.500	-	-	-	-	-	-	Articulado
N27	6.000	0.000	1.500	-	-	-	-	-	-	Articulado
N28	6.000	2.000	1.500	-	-	-	-	-	-	Articulado
N29	4.000	4.000	1.500	-	-	-	-	-	-	Articulado
N30	2.000	6.000	1.500	-	-	-	-	-	-	Articulado
N31	6.000	-2.000	1.500	-	-	-	-	-	-	Articulado
N32	2.000	-6.000	1.500	-	-	-	-	-	-	Articulado
N33	4.000	-4.000	1.500	-	-	-	-	-	-	Articulado
N34	-6.000	0.000	1.500	-	-	-	-	-	-	Articulado
N35	0.000	-4.000	1.500	-	-	-	-	-	-	Articulado
N36	-2.000	-4.000	1.500	-	-	-	-	-	-	Articulado

Nudos										
Referencia	Coordenadas			Vinculación exterior						Vinculación interior
	X (m)	Y (m)	Z (m)	Δ_x	Δ_y	Δ_z	θ_x	θ_y	θ_z	
N37	2.000	-4.000	1.500	-	-	-	-	-	-	Articulado
N38	3.000	-3.000	0.000	X	X	X	-	-	-	Articulado
N39	4.000	-2.000	1.500	-	-	-	-	-	-	Articulado
N40	2.000	-2.000	1.500	-	-	-	-	-	-	Articulado
N41	1.000	-3.000	0.000	-	-	-	-	-	-	Articulado
N42	0.000	-2.000	1.500	-	-	-	-	-	-	Articulado
N43	-1.000	-3.000	0.000	-	-	-	-	-	-	Articulado
N44	-2.000	-2.000	1.500	-	-	-	-	-	-	Articulado
N45	-3.000	-3.000	0.000	X	X	X	-	-	-	Articulado
N46	-4.000	-2.000	1.500	-	-	-	-	-	-	Articulado
N47	-3.000	-1.000	0.000	-	-	-	-	-	-	Articulado
N48	-2.000	0.000	1.500	-	-	-	-	-	-	Articulado
N49	-4.000	0.000	1.500	-	-	-	-	-	-	Articulado
N50	-4.000	2.000	1.500	-	-	-	-	-	-	Articulado
N51	-3.000	1.000	0.000	-	-	-	-	-	-	Articulado
N52	-2.000	2.000	1.500	-	-	-	-	-	-	Articulado
N53	-1.000	1.000	0.000	-	-	-	-	-	-	Articulado
N54	0.000	2.000	1.500	-	-	-	-	-	-	Articulado
N55	1.000	-1.000	0.000	-	-	-	-	-	-	Articulado
N56	2.000	0.000	1.500	-	-	-	-	-	-	Articulado
N57	3.000	-1.000	0.000	-	-	-	-	-	-	Articulado
N58	4.000	0.000	1.500	-	-	-	-	-	-	Articulado
N59	1.000	1.000	0.000	-	-	-	-	-	-	Articulado
N60	2.000	2.000	1.500	-	-	-	-	-	-	Articulado
N61	3.000	1.000	0.000	-	-	-	-	-	-	Articulado
N62	4.000	2.000	1.500	-	-	-	-	-	-	Articulado
N63	-3.000	3.000	0.000	X	X	X	-	-	-	Articulado
N64	-2.000	4.000	1.500	-	-	-	-	-	-	Articulado
N65	-1.000	3.000	0.000	-	-	-	-	-	-	Articulado
N66	0.000	4.000	1.500	-	-	-	-	-	-	Articulado
N67	1.000	3.000	0.000	-	-	-	-	-	-	Articulado
N68	2.000	4.000	1.500	-	-	-	-	-	-	Articulado
N69	3.000	3.000	0.000	X	X	X	-	-	-	Articulado

1.2.- Barras

1.2.1.- Materiales utilizados

Materiales utilizados							
Material		E (kp/cm²)	ν	G (kp/cm²)	f_y (kp/cm²)	α_t (m/m°C)	γ (t/m³)
Tipo	Designación						
Acero laminado	S275	2140672.8	0.300	825688.1	2803.3	0.000012	7.850

Notación:
E: Módulo de elasticidad
n: Módulo de Poisson
G: Módulo de cortadura
f_y: Límite elástico
a_t: Coeficiente de dilatación
g: Peso específico

1.2.2.- Descripción

Descripción									
Material		Barra (Ni/Nf)	Pieza (Ni/Nf)	Perfil(Serie)	Longitud (m)	β_{xy}	β_{xz}	$Lb_{Sup.}$ (m)	$Lb_{Inf.}$ (m)
Tipo	Designación								
Acero laminado	S275	N1/N43	N1/N2	CHS 63.0x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N43/N7	N1/N2	CHS 63.0x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N7/N53	N1/N2	CHS 63.0x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N53/N65	N1/N2	CHS 63.0x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N65/N2	N1/N2	CHS 63.0x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N3/N45	N3/N4	CHS 63.0x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N45/N47	N3/N4	CHS 63.0x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N47/N51	N3/N4	CHS 63.0x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N51/N63	N3/N4	CHS 63.0x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N63/N4	N3/N4	CHS 63.0x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N5/N17	N5/N6	CHS 63.0x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N17/N9	N5/N6	CHS 63.0x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N9/N6	N5/N6	CHS 63.0x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N7/N55	N7/N8	CHS 63.0x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N55/N57	N7/N8	CHS 63.0x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N57/N8	N7/N8	CHS 63.0x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N9/N51	N9/N10	CHS 63.0x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-

Descripción									
Material		Barra (Ni/Nf)	Pieza (Ni/Nf)	Perfil(Serie)	Longitud (m)	β_{xy}	β_{xz}	$Lb_{Sup.}$ (m)	$Lb_{Inf.}$ (m)
Tipo	Designación								
		N51/N53	N9/N10	CHS 63.0x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N53/N59	N9/N10	CHS 63.0x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N59/N61	N9/N10	CHS 63.0x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N61/N10	N9/N10	CHS 63.0x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N6/N63	N6/N11	CHS 63.0x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N63/N65	N6/N11	CHS 63.0x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N65/N67	N6/N11	CHS 63.0x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N67/N69	N6/N11	CHS 63.0x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N69/N11	N6/N11	CHS 63.0x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N12/N41	N12/N13	CHS 63.0x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N41/N55	N12/N13	CHS 63.0x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N55/N59	N12/N13	CHS 63.0x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N59/N67	N12/N13	CHS 63.0x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N67/N13	N12/N13	CHS 63.0x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N14/N38	N14/N15	CHS 63.0x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N38/N57	N14/N15	CHS 63.0x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N57/N61	N14/N15	CHS 63.0x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N61/N69	N14/N15	CHS 63.0x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N69/N15	N14/N15	CHS 63.0x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N5/N45	N5/N16	CHS 63.0x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N45/N43	N5/N16	CHS 63.0x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N43/N41	N5/N16	CHS 63.0x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N41/N38	N5/N16	CHS 63.0x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N38/N16	N5/N16	CHS 63.0x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N3/N1	N3/N14	CHS 63.0x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-

Descripción									
Material		Barra (Ni/Nf)	Pieza (Ni/Nf)	Perfil(Serie)	Longitud (m)	β_{xy}	β_{xz}	$Lb_{Sup.}$ (m)	$Lb_{Inf.}$ (m)
Tipo	Designación								
		N1/N12	N3/N14	CHS 63.0x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N12/N14	N3/N14	CHS 63.0x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N17/N47	N17/N7	CHS 63.0x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N47/N7	N17/N7	CHS 63.0x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N16/N8	N16/N11	CHS 63.0x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N8/N10	N16/N11	CHS 63.0x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N10/N11	N16/N11	CHS 63.0x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N4/N2	N4/N15	CHS 63.0x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N2/N13	N4/N15	CHS 63.0x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N13/N15	N4/N15	CHS 63.0x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N6/N4	N6/N4	CHS 63.0x3.0 (Cold Formed CHS)	2.828	1.00	1.00	-	-
		N3/N5	N3/N5	CHS 63.0x3.0 (Cold Formed CHS)	2.828	1.00	1.00	-	-
		N14/N16	N14/N16	CHS 63.0x3.0 (Cold Formed CHS)	2.828	1.00	1.00	-	-
		N11/N15	N11/N15	CHS 63.0x3.0 (Cold Formed CHS)	2.828	1.00	1.00	-	-
		N18/N35	N18/N19	CHS 76.1x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N35/N42	N18/N19	CHS 76.1x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N42/N26	N18/N19	CHS 76.1x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N26/N54	N18/N19	CHS 76.1x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N54/N66	N18/N19	CHS 76.1x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N66/N19	N18/N19	CHS 76.1x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N20/N36	N20/N21	CHS 76.1x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N36/N44	N20/N21	CHS 76.1x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N44/N48	N20/N21	CHS 76.1x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N48/N52	N20/N21	CHS 76.1x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N52/N64	N20/N21	CHS 76.1x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-

Descripción									
Material		Barra (Ni/Nf)	Pieza (Ni/Nf)	Perfil(Serie)	Longitud (m)	β_{xy}	β_{xz}	$Lb_{Sup.}$ (m)	$Lb_{Inf.}$ (m)
Tipo	Designación								
		N64/N21	N20/N21	CHS 76.1x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N22/N46	N22/N23	CHS 76.1x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N46/N49	N22/N23	CHS 76.1x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N49/N50	N22/N23	CHS 76.1x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N50/N23	N22/N23	CHS 76.1x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N24/N34	N24/N25	CHS 76.1x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N34/N25	N24/N25	CHS 76.1x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N26/N56	N26/N27	CHS 76.1x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N56/N58	N26/N27	CHS 76.1x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N58/N27	N26/N27	CHS 76.1x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N25/N50	N25/N28	CHS 76.1x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N50/N52	N25/N28	CHS 76.1x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N52/N54	N25/N28	CHS 76.1x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N54/N60	N25/N28	CHS 76.1x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N60/N62	N25/N28	CHS 76.1x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N62/N28	N25/N28	CHS 76.1x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N23/N64	N23/N29	CHS 76.1x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N64/N66	N23/N29	CHS 76.1x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N66/N68	N23/N29	CHS 76.1x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N68/N29	N23/N29	CHS 76.1x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N21/N19	N21/N30	CHS 76.1x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N19/N30	N21/N30	CHS 76.1x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N31/N27	N31/N28	CHS 76.1x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N27/N28	N31/N28	CHS 76.1x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N25/N23	N25/N21	CHS 76.1x3.0 (Cold Formed CHS)	2.828	1.00	1.00	-	-

Descripción									
Material		Barra (Ni/Nf)	Pieza (Ni/Nf)	Perfil(Serie)	Longitud (m)	β_{xy}	β_{xz}	$Lb_{Sup.}$ (m)	$Lb_{Inf.}$ (m)
Tipo	Designación								
		N23/N21	N25/N21	CHS 76.1x3.0 (Cold Formed CHS)	2.828	1.00	1.00	-	-
		N28/N29	N28/N30	CHS 76.1x3.0 (Cold Formed CHS)	2.828	1.00	1.00	-	-
		N29/N30	N28/N30	CHS 76.1x3.0 (Cold Formed CHS)	2.828	1.00	1.00	-	-
		N32/N37	N32/N30	CHS 76.1x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N37/N40	N32/N30	CHS 76.1x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N40/N56	N32/N30	CHS 76.1x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N56/N60	N32/N30	CHS 76.1x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N60/N68	N32/N30	CHS 76.1x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N68/N30	N32/N30	CHS 76.1x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N33/N39	N33/N29	CHS 76.1x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N39/N58	N33/N29	CHS 76.1x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N58/N62	N33/N29	CHS 76.1x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N62/N29	N33/N29	CHS 76.1x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N24/N46	N24/N31	CHS 76.1x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N46/N44	N24/N31	CHS 76.1x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N44/N42	N24/N31	CHS 76.1x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N42/N40	N24/N31	CHS 76.1x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N40/N39	N24/N31	CHS 76.1x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N39/N31	N24/N31	CHS 76.1x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N22/N36	N22/N33	CHS 76.1x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N36/N35	N22/N33	CHS 76.1x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N35/N37	N22/N33	CHS 76.1x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N37/N33	N22/N33	CHS 76.1x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N20/N22	N20/N24	CHS 76.1x3.0 (Cold Formed CHS)	2.828	1.00	1.00	-	-
		N22/N24	N20/N24	CHS 76.1x3.0 (Cold Formed CHS)	2.828	1.00	1.00	-	-

Descripción									
Material		Barra (Ni/Nf)	Pieza (Ni/Nf)	Perfil(Serie)	Longitud (m)	β_{xy}	β_{xz}	$Lb_{Sup.}$ (m)	$Lb_{Inf.}$ (m)
Tipo	Designación								
		N32/N33	N32/N31	CHS 76.1x3.0 (Cold Formed CHS)	2.828	1.00	1.00	-	-
		N33/N31	N32/N31	CHS 76.1x3.0 (Cold Formed CHS)	2.828	1.00	1.00	-	-
		N34/N49	N34/N26	CHS 76.1x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N49/N48	N34/N26	CHS 76.1x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N48/N26	N34/N26	CHS 76.1x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N1/N20	N1/N20	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N1/N18	N1/N18	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N1/N35	N1/N35	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N1/N36	N1/N36	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N12/N18	N12/N18	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N12/N32	N12/N32	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N12/N37	N12/N37	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N12/N35	N12/N35	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N14/N32	N14/N32	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N14/N33	N14/N33	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N14/N37	N14/N37	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N38/N37	N38/N37	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N38/N33	N38/N33	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N38/N39	N38/N39	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N38/N40	N38/N40	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N41/N35	N41/N35	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N41/N37	N41/N37	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N41/N40	N41/N40	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N41/N42	N41/N42	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N43/N36	N43/N36	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-

Descripción									
Material		Barra (Ni/Nf)	Pieza (Ni/Nf)	Perfil(Serie)	Longitud (m)	β_{xy}	β_{xz}	$Lb_{Sup.}$ (m)	$Lb_{Inf.}$ (m)
Tipo	Designación								
		N43/N35	N43/N35	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N43/N42	N43/N42	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N43/N44	N43/N44	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N45/N22	N45/N22	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N45/N36	N45/N36	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N45/N44	N45/N44	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N45/N46	N45/N46	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N47/N46	N47/N46	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N47/N44	N47/N44	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N47/N48	N47/N48	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N47/N49	N47/N49	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N17/N24	N17/N24	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N17/N46	N17/N46	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N17/N49	N17/N49	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N17/N34	N17/N34	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N9/N34	N9/N34	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N9/N49	N9/N49	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N9/N50	N9/N50	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N9/N25	N9/N25	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N51/N49	N51/N49	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N51/N48	N51/N48	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N51/N52	N51/N52	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N51/N50	N51/N50	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N53/N48	N53/N48	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N53/N26	N53/N26	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-

Descripción									
Material		Barra (Ni/Nf)	Pieza (Ni/Nf)	Perfil(Serie)	Longitud (m)	β_{xy}	β_{xz}	$Lb_{Sup.}$ (m)	$Lb_{Inf.}$ (m)
Tipo	Designación								
		N53/N54	N53/N54	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N53/N52	N53/N52	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N7/N44	N7/N44	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N7/N42	N7/N42	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N7/N26	N7/N26	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N7/N48	N7/N48	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N55/N42	N55/N42	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N55/N40	N55/N40	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N55/N56	N55/N56	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N55/N26	N55/N26	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N57/N40	N57/N40	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N57/N39	N57/N39	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N57/N58	N57/N58	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N57/N56	N57/N56	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N8/N39	N8/N39	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N8/N31	N8/N31	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N8/N27	N8/N27	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N8/N58	N8/N58	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N59/N26	N59/N26	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N59/N56	N59/N56	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N59/N60	N59/N60	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N59/N54	N59/N54	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N61/N56	N61/N56	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N61/N58	N61/N58	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N61/N62	N61/N62	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-

Descripción									
Material		Barra (Ni/Nf)	Pieza (Ni/Nf)	Perfil(Serie)	Longitud (m)	β_{xy}	β_{xz}	$Lb_{Sup.}$ (m)	$Lb_{Inf.}$ (m)
Tipo	Designación								
		N61/N60	N61/N60	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N10/N58	N10/N58	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N10/N27	N10/N27	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N10/N28	N10/N28	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N10/N62	N10/N62	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N6/N25	N6/N25	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N6/N50	N6/N50	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N6/N23	N6/N23	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N63/N50	N63/N50	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N63/N52	N63/N52	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N63/N64	N63/N64	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N63/N23	N63/N23	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N65/N52	N65/N52	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N65/N54	N65/N54	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N65/N66	N65/N66	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N65/N64	N65/N64	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N67/N54	N67/N54	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N67/N60	N67/N60	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N67/N68	N67/N68	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N67/N66	N67/N66	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N69/N60	N69/N60	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N69/N62	N69/N62	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N69/N29	N69/N29	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N69/N68	N69/N68	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N11/N62	N11/N62	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-

Descripción									
Material		Barra (Ni/Nf)	Pieza (Ni/Nf)	Perfil(Serie)	Longitud (m)	β_{xy}	β_{xz}	$Lb_{Sup.}$ (m)	$Lb_{Inf.}$ (m)
Tipo	Designación								
		N11/N28	N11/N28	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N11/N29	N11/N29	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N15/N68	N15/N68	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N15/N29	N15/N29	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N15/N30	N15/N30	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N13/N66	N13/N66	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N13/N68	N13/N68	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N13/N30	N13/N30	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N13/N19	N13/N19	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N2/N64	N2/N64	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N2/N66	N2/N66	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N2/N19	N2/N19	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N2/N21	N2/N21	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N4/N23	N4/N23	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N4/N64	N4/N64	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N4/N21	N4/N21	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N16/N33	N16/N33	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N16/N31	N16/N31	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N16/N39	N16/N39	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N3/N20	N3/N20	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N3/N36	N3/N36	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N3/N22	N3/N22	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N5/N22	N5/N22	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N5/N46	N5/N46	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-
		N5/N24	N5/N24	CHS 80.0x3.0 (Cold Formed CHS)	2.062	1.00	1.00	-	-

Descripción									
Material		Barra (Ni/Nf)	Pieza (Ni/Nf)	Perfil(Serie)	Longitud (m)	β_{xy}	β_{xz}	$Lb_{Sup.}$ (m)	$Lb_{Inf.}$ (m)
Tipo	Designación								
		N20/N18	N20/N18	CHS 76.1x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-
		N18/N32	N18/N32	CHS 55.0x3.0 (Cold Formed CHS)	2.000	1.00	1.00	-	-

Notación:
Ni: Nudo inicial
Nf: Nudo final
b_{xy}: Coeficiente de pandeo en el plano 'XY'
b_{xz}: Coeficiente de pandeo en el plano 'XZ'
$Lb_{Sup.}$: Separación entre arriostramientos del ala superior
$Lb_{Inf.}$: Separación entre arriostramientos del ala inferior

1.2.3.- Características mecánicas

Tipos de pieza	
Ref.	Piezas
1	N1/N2, N3/N4, N5/N6, N7/N8, N9/N10, N6/N11, N12/N13, N14/N15, N5/N16, N3/N14, N17/N7, N16/N11, N4/N15, N6/N4, N3/N5, N14/N16 y N11/N15
2	N18/N19, N20/N21, N22/N23, N24/N25, N26/N27, N25/N28, N23/N29, N21/N30, N31/N28, N25/N21, N28/N30, N32/N30, N33/N29, N24/N31, N22/N33, N20/N24, N32/N31, N34/N26 y N20/N18
3	N1/N20, N1/N18, N1/N35, N1/N36, N12/N18, N12/N32, N12/N37, N12/N35, N14/N32, N14/N33, N14/N37, N38/N37, N38/N33, N38/N39, N38/N40, N41/N35, N41/N37, N41/N40, N41/N42, N43/N36, N43/N35, N43/N42, N43/N44, N45/N22, N45/N36, N45/N44, N45/N46, N47/N46, N47/N44, N47/N48, N47/N49, N17/N24, N17/N46, N17/N49, N17/N34, N9/N34, N9/N49, N9/N50, N9/N25, N51/N49, N51/N48, N51/N52, N51/N50, N53/N48, N53/N26, N53/N54, N53/N52, N7/N44, N7/N42, N7/N26, N7/N48, N55/N42, N55/N40, N55/N56, N55/N26, N57/N40, N57/N39, N57/N58, N57/N56, N8/N39, N8/N31, N8/N27, N8/N58, N59/N26, N59/N56, N59/N60, N59/N54, N61/N56, N61/N58, N61/N62, N61/N60, N10/N58, N10/N27, N10/N28, N10/N62, N6/N25, N6/N50, N6/N23, N63/N50, N63/N52, N63/N64, N63/N23, N65/N52, N65/N54, N65/N66, N65/N64, N67/N54, N67/N60, N67/N68, N67/N66, N69/N60, N69/N62, N69/N29, N69/N68, N11/N62, N11/N28, N11/N29, N15/N68, N15/N29, N15/N30, N13/N66, N13/N68, N13/N30, N13/N19, N2/N64, N2/N66, N2/N19, N2/N21, N4/N23, N4/N64, N4/N21, N16/N33, N16/N31, N16/N39, N3/N20, N3/N36, N3/N22, N5/N22, N5/N46 y N5/N24
4	N18/N32

Características mecánicas									
Material		Ref.	Descripción	A (cm^2)	Avy (cm^2)	Avz (cm^2)	Iyy (cm4)	Izz (cm4)	It (cm4)
Tipo	Designación								
Acero laminado	S275	1	CHS 63.0x3.0, (Cold Formed CHS)	5.65	5.09	5.09	25.51	25.51	51.02
		2	CHS 76.1x3.0, (Cold Formed CHS)	6.89	6.20	6.20	46.10	46.10	92.19
		3	CHS 80.0x3.0, (Cold Formed CHS)	7.26	6.53	6.53	53.87	53.87	107.73
		4	CHS 55.0x3.0, (Cold Formed CHS)	4.90	4.41	4.41	16.62	16.62	33.24

Notación:
Ref.: Referencia
A: Área de la sección transversal
Avy: Área de cortante de la sección según el eje local 'Y'
Avz: Área de cortante de la sección según el eje local 'Z'
Iyy: Inercia de la sección alrededor del eje local 'Y'
Izz: Inercia de la sección alrededor del eje local 'Z'
It: Inercia a torsión
Las características mecánicas de las piezas corresponden a la sección en el punto medio de las mismas.

1.2.4.- Tabla de medición

Tabla de medición						
Material		Pieza (Ni/Nf)	Perfil(Serie)	Longitud (m)	Volumen (m^3)	Peso (kg)
Tipo	Designación					
Acero laminado	S275	N1/N2	CHS 63.0x3.0 (Cold Formed CHS)	10.000	0.006	44.39
		N3/N4	CHS 63.0x3.0 (Cold Formed CHS)	10.000	0.006	44.39
		N5/N6	CHS 63.0x3.0 (Cold Formed CHS)	6.000	0.003	26.63
		N7/N8	CHS 63.0x3.0 (Cold Formed CHS)	6.000	0.003	26.63
		N9/N10	CHS 63.0x3.0 (Cold Formed CHS)	10.000	0.006	44.39
		N6/N11	CHS 63.0x3.0 (Cold Formed CHS)	10.000	0.006	44.39
		N12/N13	CHS 63.0x3.0 (Cold Formed CHS)	10.000	0.006	44.39
		N14/N15	CHS 63.0x3.0 (Cold Formed CHS)	10.000	0.006	44.39
		N5/N16	CHS 63.0x3.0 (Cold Formed CHS)	10.000	0.006	44.39
		N3/N14	CHS 63.0x3.0 (Cold Formed CHS)	6.000	0.003	26.63
		N17/N7	CHS 63.0x3.0 (Cold Formed CHS)	4.000	0.002	17.76
		N16/N11	CHS 63.0x3.0 (Cold Formed CHS)	6.000	0.003	26.63
		N4/N15	CHS 63.0x3.0 (Cold Formed CHS)	6.000	0.003	26.63
		N6/N4	CHS 63.0x3.0 (Cold Formed CHS)	2.828	0.002	12.56
		N3/N5	CHS 63.0x3.0 (Cold Formed CHS)	2.828	0.002	12.56
		N14/N16	CHS 63.0x3.0 (Cold Formed CHS)	2.828	0.002	12.56
		N11/N15	CHS 63.0x3.0 (Cold Formed CHS)	2.828	0.002	12.56
		N18/N19	CHS 76.1x3.0 (Cold Formed CHS)	12.000	0.008	64.90
		N20/N21	CHS 76.1x3.0 (Cold Formed CHS)	12.000	0.008	64.90
		N22/N23	CHS 76.1x3.0 (Cold Formed CHS)	8.000	0.006	43.27
		N24/N25	CHS 76.1x3.0 (Cold Formed CHS)	4.000	0.003	21.63
		N26/N27	CHS 76.1x3.0 (Cold Formed CHS)	6.000	0.004	32.45
		N25/N28	CHS 76.1x3.0 (Cold Formed CHS)	12.000	0.008	64.90
		N23/N29	CHS 76.1x3.0 (Cold Formed CHS)	8.000	0.006	43.27

Tabla de medición						
Material		Pieza (Ni/Nf)	Perfil(Serie)	Longitud (m)	Volumen (m^3)	Peso (kg)
Tipo	Designación					
		N21/N30	CHS 76.1x3.0 (Cold Formed CHS)	4.000	0.003	21.63
		N31/N28	CHS 76.1x3.0 (Cold Formed CHS)	4.000	0.003	21.63
		N25/N21	CHS 76.1x3.0 (Cold Formed CHS)	5.657	0.004	30.59
		N28/N30	CHS 76.1x3.0 (Cold Formed CHS)	5.657	0.004	30.59
		N32/N30	CHS 76.1x3.0 (Cold Formed CHS)	12.000	0.008	64.90
		N33/N29	CHS 76.1x3.0 (Cold Formed CHS)	8.000	0.006	43.27
		N24/N31	CHS 76.1x3.0 (Cold Formed CHS)	12.000	0.008	64.90
		N22/N33	CHS 76.1x3.0 (Cold Formed CHS)	8.000	0.006	43.27
		N20/N24	CHS 76.1x3.0 (Cold Formed CHS)	5.657	0.004	30.59
		N32/N31	CHS 76.1x3.0 (Cold Formed CHS)	5.657	0.004	30.59
		N34/N26	CHS 76.1x3.0 (Cold Formed CHS)	6.000	0.004	32.45
		N1/N20	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N1/N18	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N1/N35	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N1/N36	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N12/N18	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N12/N32	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N12/N37	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N12/N35	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N14/N32	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N14/N33	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N14/N37	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N38/N37	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N38/N33	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N38/N39	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74

Tabla de medición						
Material		Pieza (Ni/Nf)	Perfil(Serie)	Longitud (m)	Volumen (m^3)	Peso (kg)
Tipo	Designación					
		N38/N40	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N41/N35	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N41/N37	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N41/N40	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N41/N42	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N43/N36	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N43/N35	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N43/N42	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N43/N44	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N45/N22	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N45/N36	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N45/N44	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N45/N46	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N47/N46	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N47/N44	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N47/N48	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N47/N49	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N17/N24	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N17/N46	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N17/N49	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N17/N34	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N9/N34	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N9/N49	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N9/N50	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N9/N25	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74

Tabla de medición						
Material		Pieza (Ni/Nf)	Perfil(Serie)	Longitud (m)	Volumen (m^3)	Peso (kg)
Tipo	Designación					
		N51/N49	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N51/N48	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N51/N52	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N51/N50	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N53/N48	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N53/N26	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N53/N54	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N53/N52	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N7/N44	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N7/N42	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N7/N26	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N7/N48	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N55/N42	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N55/N40	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N55/N56	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N55/N26	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N57/N40	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N57/N39	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N57/N58	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N57/N56	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N8/N39	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N8/N31	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N8/N27	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N8/N58	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N59/N26	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74

Tabla de medición						
Material		Pieza (Ni/Nf)	Perfil(Serie)	Longitud (m)	Volumen (m^3)	Peso (kg)
Tipo	Designación					
		N59/N56	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N59/N60	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N59/N54	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N61/N56	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N61/N58	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N61/N62	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N61/N60	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N10/N58	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N10/N27	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N10/N28	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N10/N62	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N6/N25	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N6/N50	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N6/N23	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N63/N50	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N63/N52	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N63/N64	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N63/N23	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N65/N52	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N65/N54	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N65/N66	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N65/N64	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N67/N54	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N67/N60	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N67/N68	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74

Tabla de medición						
Material		Pieza (Ni/Nf)	Perfil(Serie)	Longitud (m)	Volumen (m^3)	Peso (kg)
Tipo	Designación					
		N67/N66	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N69/N60	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N69/N62	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N69/N29	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N69/N68	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N11/N62	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N11/N28	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N11/N29	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N15/N68	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N15/N29	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N15/N30	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N13/N66	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N13/N68	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N13/N30	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N13/N19	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N2/N64	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N2/N66	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N2/N19	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N2/N21	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N4/N23	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N4/N64	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N4/N21	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N16/N33	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N16/N31	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N16/N39	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74

Tabla de medición						
Material		Pieza (Ni/Nf)	Perfil(Serie)	Longitud (m)	Volumen (m³)	Peso (kg)
Tipo	Designación					
		N3/N20	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N3/N36	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N3/N22	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N5/N22	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N5/N46	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N5/N24	CHS 80.0x3.0 (Cold Formed CHS)	2.062	0.001	11.74
		N20/N18	CHS 76.1x3.0 (Cold Formed CHS)	2.000	0.001	10.82
		N18/N32	CHS 55.0x3.0 (Cold Formed CHS)	2.000	0.001	7.69
Notación: *Ni: Nudo inicial* *Nf: Nudo final*						

1.2.5.- Resumen de medición

Resumen de medición												
Material		Serie	Perfil	Longitud			Volumen			Peso		
Tipo	Designación			Perfil (m)	Serie (m)	Material (m)	Perfil (m³)	Serie (m³)	Material (m³)	Perfil (kg)	Serie (kg)	Material (kg)
			CHS 63.0x3.0	115.314			0.065			511.89		
			CHS 76.1x3.0	140.627			0.097			760.55		
			CHS 80.0x3.0	247.386			0.180			1409.31		
			CHS 55.0x3.0	2.000			0.001			7.69		
		Cold Formed CHS			505.327			0.343			2689.44	
Acero laminado	S275					505.327			0.343			2689.44

1.2.6.- Medición de superficies

Acero laminado: Medición de las superficies a pintar				
Serie	Perfil	Superficie unitaria (m²/m)	Longitud (m)	Superficie (m²)
Cold Formed CHS	CHS 63.0x3.0	0.198	115.314	22.823
	CHS 76.1x3.0	0.239	140.627	33.621
	CHS 80.0x3.0	0.251	247.386	62.175
	CHS 55.0x3.0	0.173	2.000	0.346
			Total	118.964