1. Relatório de ligações dos nós

Ordem: Por número

Nó 1 [+0; +600; +2122] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
3: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 29,9 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	46,1%	Sim
Travessas / longarinas					
1: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,047 kN·m	$M_{z,Rd}$ = 0,600 kN·m	7,8%	Sim
		$V_{y,Ed}$ = 0,6 kN	$V_{y,Rd}$ = 15,0 kN	3,7%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,9%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,002 kN·m	---	---	---
		$M_{y,Ed}$ = 0,023 kN·m	---	---	---
2: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,011 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,8%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,1%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,3%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,012 kN·m	---	---	---
		$M_{y,Ed}$ = 0,011 kN·m	---	---	---
Diagonais					
4: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 26,6 kN	$N_{c,Rd}$ = 7,0 kN	380,4%	Não
		$N_{t,Ed}$ = 0,0 kN	$N_{t,Rd}$ = 7,0 kN	0,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,010 kN·m	---	---	---
		$M_{y,Ed}$ = 0,007 kN·m	---	---	---
		$M_{z,Ed}$ = 0,061 kN·m	---	---	---
5: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 1,4 kN	$N_{c,Rd}$ = 7,0 kN	19,7%	Sim
		$N_{t,Ed}$ = 0,4 kN	$N_{t,Rd}$ = 7,0 kN	5,5%	Sim
		$V_{y,Ed}$ = 0,0 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,008 kN·m	---	---	---
		$M_{y,Ed}$ = 0,014 kN·m	---	---	---
		$M_{z,Ed}$ = 0,010 kN·m	---	---	---

Nó 2 [+109; +600; +2122] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
7: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 23,8 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	36,7%	Sim
Travessas / longarinas					
1: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,039 kN·m	$M_{z,Rd}$ = 0,600 kN·m	6,5%	Sim
		$V_{y,Ed}$ = 0,5 kN	$V_{y,Rd}$ = 15,0 kN	3,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,9%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,002 kN·m	---	---	---
		$M_{y,Ed}$ = 0,027 kN·m	---	---	---
6: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,010 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,7%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,1%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,8%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,012 kN·m	---	---	---
		$M_{y,Ed}$ = 0,003 kN·m	---	---	---
Diagonais					
8: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 17,6 kN	$N_{c,Rd}$ = 7,0 kN	252,0%	Não
		$N_{t,Ed}$ = 0,0 kN	$N_{t,Rd}$ = 7,0 kN	0,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,010 kN·m	---	---	---
		$M_{y,Ed}$ = 0,011 kN·m	---	---	---
		$M_{z,Ed}$ = 0,057 kN·m	---	---	---
9: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 11,4 kN	$N_{c,Rd}$ = 7,0 kN	162,8%	Não
		$N_{t,Ed}$ = 11,0 kN	$N_{t,Rd}$ = 7,0 kN	157,3%	Não
		$V_{y,Ed}$ = 0,0 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,006 kN·m	---	---	---
		$M_{y,Ed}$ = 0,013 kN·m	---	---	---
		$M_{z,Ed}$ = 0,006 kN·m	---	---	---
10: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 2,1 kN	$N_{c,Rd}$ = 7,0 kN	30,5%	Sim
		$N_{t,Ed}$ = 0,0 kN	$N_{t,Rd}$ = 7,0 kN	0,0%	Sim
		$V_{y,Ed}$ = 0,0 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,011 kN·m	---	---	---
		$M_{y,Ed}$ = 0,011 kN·m	---	---	---
		$M_{z,Ed}$ = 0,011 kN·m	---	---	---

Nó 3 [+0; +600; +2231] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
13: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 5,6 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	8,7%	Sim
Travessas / longarinas					
2: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,018 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,1%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,3%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,012 kN·m	---	---	---
		$M_{y,Ed}$ = 0,003 kN·m	---	---	---
11: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,059 kN·m	$M_{z,Rd}$ = 0,600 kN·m	9,9%	Sim
		$V_{y,Ed}$ = 0,6 kN	$V_{y,Rd}$ = 15,0 kN	3,9%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,0%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,003 kN·m	---	---	---
		$M_{y,Ed}$ = 0,017 kN·m	---	---	---
12: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,007 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,2%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,0%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,009 kN·m	---	---	---
		$M_{y,Ed}$ = 0,002 kN·m	---	---	---

Nó 4 [+109; +600; +2231] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
15: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 8,9 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	13,7%	Sim
Travessas / longarinas					
6: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,018 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 5,0 kN	6,1%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,012 kN·m	---	---	---
		$M_{y,Ed}$ = 0,089 kN·m	---	---	---
11: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,053 kN·m	$M_{z,Rd}$ = 0,600 kN·m	8,8%	Sim
		$V_{y,Ed}$ = 0,6 kN	$V_{y,Rd}$ = 15,0 kN	3,8%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,0%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,003 kN·m	---	---	---
		$M_{y,Ed}$ = 0,038 kN·m	---	---	---
14: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,006 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,1%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	8,1%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,008 kN·m	---	---	---
		$M_{y,Ed}$ = 0,124 kN·m	---	---	---

Nó 5 [+0; +600; +2438] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
18: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 8,5 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	13,1%	Sim
Travessas / longarinas					
12: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,023 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,0%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,009 kN·m	---	---	---
		$M_{y,Ed}$ = 0,001 kN·m	---	---	---
16: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,075 kN·m	$M_{z,Rd}$ = 0,600 kN·m	12,4%	Sim
		$V_{y,Ed}$ = 0,6 kN	$V_{y,Rd}$ = 15,0 kN	4,0%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,1%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,003 kN·m	---	---	---
		$M_{y,Ed}$ = 0,002 kN·m	---	---	---
17: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,007 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,1%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,0%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,013 kN·m	---	---	---
		$M_{y,Ed}$ = 0,000 kN·m	---	---	---

Nó 6 [+109; +600; +2438] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
20: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 8,6 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	13,2%	Sim
Travessas / longarinas					
14: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,023 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	8,6%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,008 kN·m	---	---	---
		$M_{y,Ed}$ = 0,154 kN·m	---	---	---
16: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,072 kN·m	$M_{z,Rd}$ = 0,600 kN·m	12,0%	Sim
		$V_{y,Ed}$ = 0,6 kN	$V_{y,Rd}$ = 15,0 kN	4,0%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,1%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,003 kN·m	---	---	---
		$M_{y,Ed}$ = 0,002 kN·m	---	---	---
19: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,006 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,0%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	8,7%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,018 kN·m	---	---	---
		$M_{y,Ed}$ = 0,155 kN·m	---	---	---

Nó 7 [+0; +600; +2645] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
23: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 6,7 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	10,4%	Sim
Travessas / longarinas					
17: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,023 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,0%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,013 kN·m	---	---	---
		$M_{y,Ed}$ = 0,000 kN·m	---	---	---
21: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,033 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,6%	Sim
		$V_{y,Ed}$ = 0,3 kN	$V_{y,Rd}$ = 15,0 kN	2,2%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,1%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$M_{x,Ed}$ = 0,004 kN·m	---	---	---
		$M_{y,Ed}$ = 0,020 kN·m	---	---	---
22: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,015 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,5%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,1%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,0%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,013 kN·m	---	---	---
		$M_{y,Ed}$ = 0,001 kN·m	---	---	---

Nó 8 [+109; +600; +2645] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
26: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 12,9 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	19,8%	Sim
Travessas / longarinas					
19: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,022 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	8,0%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,018 kN·m	---	---	---
		$M_{y,Ed}$ = 0,123 kN·m	---	---	---
21: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,035 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,9%	Sim
		$V_{y,Ed}$ = 0,3 kN	$V_{y,Rd}$ = 15,0 kN	2,2%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,1%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,004 kN·m	---	---	---
		$M_{y,Ed}$ = 0,039 kN·m	---	---	---
24: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,036 kN·m	$M_{z,Rd}$ = 0,600 kN·m	6,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,1%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,014 kN·m	---	---	---
		$M_{y,Ed}$ = 0,014 kN·m	---	---	---
25: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,015 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,4%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,1%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 5,0 kN	5,7%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,012	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		kN·m			
		$M_{v,Ed}$ = 0,083 kN·m	---	---	---
Diagonais					
27: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 2,6 kN	$N_{c,Rd}$ = 7,0 kN	37,0%	Sim
		$N_{t,Ed}$ = 2,6 kN	$N_{t,Rd}$ = 7,0 kN	37,6%	Sim
		$V_{y,Ed}$ = 0,0 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,003 kN·m	---	---	---
		$M_{y,Ed}$ = 0,005 kN·m	---	---	---
		$M_{z,Ed}$ = 0,010 kN·m	---	---	---

Nó 9 [+416; +600; +2645] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
30: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 2,4 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	3,6%	Sim
Travessas / longarinas					
24: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,034 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,1%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,014 kN·m	---	---	---
		$M_{y,Ed}$ = 0,007 kN·m	---	---	---
28: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,037 kN·m	$M_{z,Rd}$ = 0,600 kN·m	6,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,0%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,005 kN·m	---	---	---
		$M_{y,Ed}$ = 0,003 kN·m	---	---	---
29: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,047 kN·m	$M_{z,Rd}$ = 0,600 kN·m	7,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,7%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,4%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,013 kN·m	---	---	---
		$M_{y,Ed}$ = 0,007 kN·m	---	---	---

Nó 10 [+723; +600; +2645] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
32: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,3 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,5%	Sim
Travessas / longarinas					
28: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,033 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,0%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,005 kN·m	---	---	---
		$M_{y,Ed}$ = 0,005 kN·m	---	---	---
31: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,063 kN·m	$M_{z,Rd}$ = 0,600 kN·m	10,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,9%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,2%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,014 kN·m	---	---	---
		$M_{y,Ed}$ = 0,009 kN·m	---	---	---

Nó 11 [+0; +600; +2754] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
34: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 3,4 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	5,2%	Sim
Travessas / longarinas					
22: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,020 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,0%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,013 kN·m	---	---	---
		$M_{y,Ed}$ = 0,001 kN·m	---	---	---
33: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,010 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,9%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,3%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,005 kN·m	---	---	---
		$M_{y,Ed}$ = 0,006 kN·m	---	---	---

Nó 12 [+109; +600; +2754] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
36: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 5,8 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	9,0%	Sim
Travessas / longarinas					
25: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,019 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	3,1%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,012 kN·m	---	---	---
		$M_{y,Ed}$ = 0,012 kN·m	---	---	---
33: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,015 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,9%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,3%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,005 kN·m	---	---	---
		$M_{y,Ed}$ = 0,010 kN·m	---	---	---
35: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,025 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,1%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,014 kN·m	---	---	---
		$M_{y,Ed}$ = 0,006 kN·m	---	---	---

Nó 13 [+416; +600; +2754] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
39: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 5,3 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	8,1%	Sim
Travessas / longarinas					
29: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,048 kN·m	$M_{z,Rd}$ = 0,600 kN·m	8,1%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,8%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,4%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,013 kN·m	---	---	---
		$M_{y,Ed}$ = 0,014 kN·m	---	---	---
35: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,022 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,1%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$M_{x,Ed}$ = 0,014 kN·m	---	---	---
		$M_{y,Ed}$ = 0,007 kN·m	---	---	---
37: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,031 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,1%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,0%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,006 kN·m	---	---	---
		$M_{y,Ed}$ = 0,004 kN·m	---	---	---
Diagonais					
38: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 3,6 kN	$N_{c,Rd}$ = 7,0 kN	51,7%	Sim
		$N_{t,Ed}$ = 3,4 kN	$N_{t,Rd}$ = 7,0 kN	48,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,006 kN·m	---	---	---
		$M_{y,Ed}$ = 0,012 kN·m	---	---	---
		$M_{z,Ed}$ = 0,023 kN·m	---	---	---

Nó 14 [+723; +600; +2754] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
41: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 3,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	4,8%	Sim
Travessas / longarinas					
31: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,066 kN·m	$M_{z,Rd}$ = 0,600 kN·m	11,1%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	1,0%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,2%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,014 kN·m	---	---	---
		$M_{y,Ed}$ = 0,002 kN·m	---	---	---
37: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,020 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,0%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,006 kN·m	---	---	---
		$M_{y,Ed}$ = 0,001 kN·m	---	---	---
Diagonais					
40: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 5,9 kN	$N_{c,Rd}$ = 7,0 kN	84,2%	Sim
		$N_{t,Ed}$ = 6,1 kN	$N_{t,Rd}$ = 7,0 kN	86,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,005 kN·m	---	---	---
		$M_{y,Ed}$ = 0,018 kN·m	---	---	---
		$M_{z,Ed}$ = 0,022 kN·m	---	---	---

Nó 15 [+0; +650; +2122] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
3: CHSH 48.3x3.2 43: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,0 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,0%	Sim
Travessas / longarinas					
42: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,021 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,5%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,1%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,1%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,017 kN·m	---	---	---
		$M_{y,Ed}$ = 0,003 kN·m	---	---	---

Nó 16 [+109; +650; +2122] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
7: CHSH 48.3x3.2 45: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,0 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,0%	Sim
Travessas / longarinas					
44: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,019 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,2%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,1%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,3%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,2%	Sim
		$M_{x,Ed}$ = 0,016 kN·m	---	---	---
		$M_{y,Ed}$ = 0,005 kN·m	---	---	---

Nó 17 [+0; +650; +2231] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
13: CHSH 48.3x3.2 47: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
42: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,022 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,1%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,017 kN·m	---	---	---
		$M_{y,Ed}$ = 0,003 kN·m	---	---	---
46: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,007 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,1%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,1%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,1%	Sim
		$M_{x,Ed}$ = 0,014 kN·m	---	---	---
		$M_{y,Ed}$ = 0,001 kN·m	---	---	---

Nó 18 [+109; +650; +2231] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
15: CHSH 48.3x3.2 49: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
44: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,020 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,3%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,2%	Sim
		$M_{x,Ed}$ = 0,016 kN·m	---	---	---
		$M_{y,Ed}$ = 0,010 kN·m	---	---	---
48: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,006 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,0%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,1%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,2%	Sim
		$M_{x,Ed}$ = 0,013 kN·m	---	---	---
		$M_{y,Ed}$ = 0,005 kN·m	---	---	---

Nó 19 [+0; +650; +2438] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
18: CHSH 48.3x3.2 51: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
46: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,023 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,1%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,1%	Sim
		$M_{x,Ed}$ = 0,014 kN·m	---	---	---
		$M_{y,Ed}$ = 0,013 kN·m	---	---	---
50: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,007 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,1%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,2%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,1%	Sim
		$M_{x,Ed}$ = 0,019 kN·m	---	---	---
		$M_{y,Ed}$ = 0,014 kN·m	---	---	---

Nó 20 [+109; +650; +2438] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
20: CHSH 48.3x3.2 53: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
48: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,022 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,1%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,2%	Sim
		$M_{x,Ed}$ = 0,013 kN·m	---	---	---
		$M_{y,Ed}$ = 0,011 kN·m	---	---	---
52: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,006 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,0%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,1%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,3%	Sim
		$M_{x,Ed}$ = 0,019 kN·m	---	---	---
		$M_{y,Ed}$ = 0,013 kN·m	---	---	---

Nó 21 [+0; +650; +2645] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
23: CHSH 48.3x3.2 55: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,1%	Sim
Travessas / longarinas					
50: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,023 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,2%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,1%	Sim
		$M_{x,Ed}$ = 0,019 kN·m	---	---	---
		$M_{v,Ed}$ = 0,002 kN·m	---	---	---
54: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,016 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,6%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,1%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,2%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,1%	Sim
		$M_{x,Ed}$ = 0,018 kN·m	---	---	---
		$M_{y,Ed}$ = 0,004 kN·m	---	---	---

Nó 22 [+109; +650; +2645] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
26: CHSH 48.3x3.2 57: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,1%	Sim
Travessas / longarinas					
52: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,022 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,1%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,3%	Sim
		$M_{x,Ed}$ = 0,019 kN·m	---	---	---
		$M_{y,Ed}$ = 0,003 kN·m	---	---	---
56: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,015 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,4%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,1%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,1%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,3%	Sim
		$M_{x,Ed}$ = 0,019 kN·m	---	---	---
		$M_{y,Ed}$ = 0,013	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		kN·m			

Nó 23 [+0; +650; +2754] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
34: CHSH 48.3x3.2 59: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,1%	Sim
Travessas / longarinas					
54: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,019 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,2%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,1%	Sim
		$M_{x,Ed}$ = 0,018 kN·m	---	---	---
		$M_{y,Ed}$ = 0,015 kN·m	---	---	---
58: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,008 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,3%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,6%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,1%	Sim
		$M_{x,Ed}$ = 0,003 kN·m	---	---	---
		$M_{y,Ed}$ = 0,017 kN·m	---	---	---

Nó 24 [+109; +650; +2754] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
36: CHSH 48.3x3.2 60: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,1%	Sim
Travessas / longarinas					
56: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,018 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,1%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,3%	Sim
		$M_{x,Ed}$ = 0,019 kN·m	---	---	---
		$M_{y,Ed}$ = 0,009 kN·m	---	---	---
58: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,007 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,2%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,6%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,1%	Sim
		$M_{x,Ed}$ = 0,003 kN·m	---	---	---
		$M_{y,Ed}$ = 0,016 kN·m	---	---	---

Nó 25 [+0; +700; +2122] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
43: CHSH 48.3x3.2 62: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,7 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	1,1%	Sim
Travessas / longarinas					
61: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,004 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,7%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,4%	Sim
		N_{Ed} = 0,7 kN	N_{Rd} = 20,0 kN	3,7%	Sim
		$M_{x,Ed}$ = 0,018 kN·m	---	---	---
		$M_{y,Ed}$ = 0,017 kN·m	---	---	---
Diagonais					
63: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 1,2 kN	$N_{c,Rd}$ = 7,0 kN	16,5%	Sim
		$N_{t,Ed}$ = 0,0 kN	$N_{t,Rd}$ = 7,0 kN	0,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,019 kN·m	---	---	---
		$M_{y,Ed}$ = 0,013 kN·m	---	---	---
		$M_{z,Ed}$ = 0,055 kN·m	---	---	---

Nó 26 [+109; +700; +2122] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
45: CHSH 48.3x3.2 65: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,6 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	1,0%	Sim
Travessas / longarinas					
64: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,002 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,3%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,2%	Sim
		N_{Ed} = 0,7 kN	N_{Rd} = 20,0 kN	3,3%	Sim
		$M_{x,Ed}$ = 0,016 kN·m	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$M_{y,Ed}$ = 0,012 kN·m	---	---	---
Diagonais					
66: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 1,0 kN	$N_{c,Rd}$ = 7,0 kN	14,5%	Sim
		$N_{t,Ed}$ = 0,0 kN	$N_{t,Rd}$ = 7,0 kN	0,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,018 kN·m	---	---	---
		$M_{y,Ed}$ = 0,009 kN·m	---	---	---
		$M_{z,Ed}$ = 0,051 kN·m	---	---	---

Nó 27 [+0; +700; +2231] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
47: CHSH 48.3x3.2 68: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,1%	Sim
Travessas / longarinas					
61: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,009 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,5%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,4%	Sim
		N_{Ed} = 0,7 kN	N_{Rd} = 20,0 kN	3,7%	Sim
		$M_{x,Ed}$ = 0,018 kN·m	---	---	---
		$M_{y,Ed}$ = 0,004 kN·m	---	---	---
67: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,008 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,4%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	2,8%	Sim
		$M_{x,Ed}$ = 0,019 kN·m	---	---	---
		$M_{y,Ed}$ = 0,010 kN·m	---	---	---

Nó 28 [+109; +700; +2231] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
49: CHSH 48.3x3.2 70: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,1%	Sim
Travessas / longarinas					
64: CHSH	Acero Tub T02	$M_{z,Ed}$ = 0,007	$M_{z,Rd}$ = 0,600	1,2%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
48.3x3.2		kN·m	kN·m		
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,2%	Sim
		N_{Ed} = 0,7 kN	N_{Rd} = 20,0 kN	3,3%	Sim
		$M_{x,Ed}$ = 0,016 kN·m	---	---	---
		$M_{y,Ed}$ = 0,003 kN·m	---	---	---
69: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,007 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,1%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,4%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,4%	Sim
		$M_{x,Ed}$ = 0,018 kN·m	---	---	---
		$M_{y,Ed}$ = 0,006 kN·m	---	---	---

Nó 29 [+0; +700; +2438] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
51: CHSH 48.3x3.2 72: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
67: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,010 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,4%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	2,8%	Sim
		$M_{x,Ed}$ = 0,019 kN·m	---	---	---
		$M_{y,Ed}$ = 0,034 kN·m	---	---	---
71: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,008 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,4%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	1,9%	Sim
		$M_{x,Ed}$ = 0,023 kN·m	---	---	---
		$M_{y,Ed}$ = 0,035 kN·m	---	---	---

Nó 30 [+109; +700; +2438] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
53: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
74: CHSH 48.3x3.2					
Travessas / longarinas					
69: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,011 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,4%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,4%	Sim
		$M_{x,Ed}$ = 0,018 kN·m	---	---	---
		$M_{y,Ed}$ = 0,031 kN·m	---	---	---
73: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,008 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,4%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,6%	Sim
		$M_{x,Ed}$ = 0,021 kN·m	---	---	---
		$M_{y,Ed}$ = 0,034 kN·m	---	---	---

Nó 31 [+0; +700; +2645] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
55: CHSH 48.3x3.2 76: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,1%	Sim
Travessas / longarinas					
71: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,011 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,4%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	1,9%	Sim
		$M_{x,Ed}$ = 0,023 kN·m	---	---	---
		$M_{y,Ed}$ = 0,011 kN·m	---	---	---
75: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,002 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,3%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,9%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	1,1%	Sim
		$M_{x,Ed}$ = 0,024 kN·m	---	---	---
		$M_{y,Ed}$ = 0,007 kN·m	---	---	---

Nó 32 [+109; +700; +2645] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
57: CHSH 48.3x3.2 78: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,1%	Sim
Travessas / longarinas					
73: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,010 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,4%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,6%	Sim
		$M_{x,Ed}$ = 0,021 kN·m	---	---	---
		$M_{y,Ed}$ = 0,009 kN·m	---	---	---
77: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,001 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,2%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,7%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	0,8%	Sim
		$M_{x,Ed}$ = 0,024 kN·m	---	---	---
		$M_{y,Ed}$ = 0,001 kN·m	---	---	---

Nó 33 [+0; +700; +2754] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
59: CHSH 48.3x3.2 80: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,1%	Sim
Travessas / longarinas					
75: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,005 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,8%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,9%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	1,1%	Sim
		$M_{x,Ed}$ = 0,024 kN·m	---	---	---
		$M_{y,Ed}$ = 0,041 kN·m	---	---	---
79: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,006 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,0%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,6%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,1%	Sim
		$M_{x,Ed}$ = 0,001 kN·m	---	---	---
		$M_{y,Ed}$ = 0,045 kN·m	---	---	---

Nó 34 [+109; +700; +2754] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
60: CHSH 48.3x3.2 81: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,1%	Sim
Travessas / longarinas					
77: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,005 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,8%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,7%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	0,8%	Sim
		$M_{x,Ed}$ = 0,024 kN·m	---	---	---
		$M_{v,Ed}$ = 0,038 kN·m	---	---	---
79: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,004 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,6%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,6%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,1%	Sim
		$M_{x,Ed}$ = 0,001 kN·m	---	---	---
		$M_{y,Ed}$ = 0,044 kN·m	---	---	---

Nó 35 [+0; +800; +1815] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
84: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 4,3 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	6,6%	Sim
Travessas / longarinas					
82: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,106 kN·m	$M_{z,Rd}$ = 0,600 kN·m	17,6%	Sim
		$V_{y,Ed}$ = 0,7 kN	$V_{y,Rd}$ = 15,0 kN	4,4%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	3,0%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,2%	Sim
		$M_{x,Ed}$ = 0,010 kN·m	---	---	---
		$M_{y,Ed}$ = 0,080 kN·m	---	---	---
83: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,021 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,5%	Sim
		N_{Ed} = 7,8 kN	N_{Rd} = 20,0 kN	39,0%	Sim
		$M_{x,Ed}$ = 0,026 kN·m	---	---	---
		$M_{y,Ed}$ = 0,028 kN·m	---	---	---
Diagonais					

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
4: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 26,5 kN	$N_{c,Rd}$ = 7,0 kN	379,3%	Não
		$N_{t,Ed}$ = 0,0 kN	$N_{t,Rd}$ = 7,0 kN	0,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,010 kN·m	---	---	---
		$M_{y,Ed}$ = 0,025 kN·m	---	---	---
		$M_{z,Ed}$ = 0,031 kN·m	---	---	---
85: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 18,1 kN	$N_{c,Rd}$ = 7,0 kN	259,0%	Não
		$N_{t,Ed}$ = 0,0 kN	$N_{t,Rd}$ = 7,0 kN	0,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,019 kN·m	---	---	---
		$M_{y,Ed}$ = 0,030 kN·m	---	---	---
		$M_{z,Ed}$ = 0,055 kN·m	---	---	---

Erros de comprovação

Resistência à compressão da diagonal insuficiente

Nó 36 [+109; +800; +1815] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
87: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 4,7 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	7,2%	Sim
Travessas / longarinas					
82: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,124 kN·m	$M_{z,Rd}$ = 0,600 kN·m	20,6%	Sim
		$V_{y,Ed}$ = 0,7 kN	$V_{y,Rd}$ = 15,0 kN	4,7%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	3,0%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,2%	Sim
		$M_{x,Ed}$ = 0,010 kN·m	---	---	---
		$M_{y,Ed}$ = 0,084 kN·m	---	---	---
86: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,022 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,5%	Sim
		N_{Ed} = 8,4 kN	N_{Rd} = 20,0 kN	41,9%	Sim
		$M_{x,Ed}$ = 0,030 kN·m	---	---	---
		$M_{y,Ed}$ = 0,026 kN·m	---	---	---
Diagonais					
8: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 17,6 kN	$N_{c,Rd}$ = 7,0 kN	250,9%	Não
		$N_{t,Ed}$ = 0,0 kN	$N_{t,Rd}$ = 7,0 kN	0,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$M_{x,Ed}$ = 0,010 kN·m	---	---	---
		$M_{y,Ed}$ = 0,027 kN·m	---	---	---
		$M_{z,Ed}$ = 0,030 kN·m	---	---	---
88: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 7,9 kN	$N_{c,Rd}$ = 7,0 kN	113,4%	Não
		$N_{t,Ed}$ = 0,0 kN	$N_{t,Rd}$ = 7,0 kN	0,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,019 kN·m	---	---	---
		$M_{y,Ed}$ = 0,036 kN·m	---	---	---
		$M_{z,Ed}$ = 0,045 kN·m	---	---	---

Erros de comprovação

Resistência à compressão da diagonal insuficiente

Nó 37 [+0; +800; +2122] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
62: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 13,7 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	21,1%	Sim
91: CHSH 48.3x3.2					
Travessas / longarinas					
83: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,020 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,5%	Sim
		N_{Ed} = 7,8 kN	N_{Rd} = 20,0 kN	39,0%	Sim
		$M_{x,Ed}$ = 0,026 kN·m	---	---	---
		$M_{y,Ed}$ = 0,046 kN·m	---	---	---
89: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,036 kN·m	$M_{z,Rd}$ = 0,600 kN·m	6,1%	Sim
		$V_{y,Ed}$ = 0,5 kN	$V_{y,Rd}$ = 15,0 kN	3,6%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	3,6%	Sim
		N_{Ed} = 5,4 kN	N_{Rd} = 20,0 kN	27,1%	Sim
		$M_{x,Ed}$ = 0,005 kN·m	---	---	---
		$M_{y,Ed}$ = 0,098 kN·m	---	---	---
90: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,022 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,3%	Sim
		N_{Ed} = 0,8 kN	N_{Rd} = 20,0 kN	4,2%	Sim
		$M_{x,Ed}$ = 0,008 kN·m	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$M_{y,Ed}$ = 0,135 kN·m	---	---	---
Diagonais					
9: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 11,3 kN	$N_{c,Rd}$ = 7,0 kN	162,1%	Não
		$N_{t,Ed}$ = 11,1 kN	$N_{t,Rd}$ = 7,0 kN	158,1%	Não
		$V_{y,Ed}$ = 0,0 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,006 kN·m	---	---	---
		$M_{y,Ed}$ = 0,034 kN·m	---	---	---
		$M_{z,Ed}$ = 0,006 kN·m	---	---	---
92: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 12,2 kN	$N_{c,Rd}$ = 7,0 kN	174,0%	Não
		$N_{t,Ed}$ = 0,0 kN	$N_{t,Rd}$ = 7,0 kN	0,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,039 kN·m	---	---	---
		$M_{y,Ed}$ = 0,045 kN·m	---	---	---
		$M_{z,Ed}$ = 0,044 kN·m	---	---	---
93: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 8,0 kN	$N_{c,Rd}$ = 7,0 kN	114,5%	Não
		$N_{t,Ed}$ = 2,7 kN	$N_{t,Rd}$ = 7,0 kN	38,5%	Sim
		$V_{y,Ed}$ = 0,0 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,015 kN·m	---	---	---
		$M_{y,Ed}$ = 0,019 kN·m	---	---	---
		$M_{z,Ed}$ = 0,027 kN·m	---	---	---

Erros de comprovação

Resistência à compressão da diagonal insuficiente

Nó 38 [+109; +800; +2122] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
65: CHSH 48.3x3.2 95: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 14,0 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	21,6%	Sim
Travessas / longarinas					
86: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,020 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,5%	Sim
		N_{Ed} = 8,4 kN	N_{Rd} = 20,0 kN	41,9%	Sim
		$M_{x,Ed}$ = 0,030 kN·m	---	---	---
		$M_{y,Ed}$ = 0,045	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		kN·m			
89: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,038 kN·m	$M_{z,Rd}$ = 0,600 kN·m	6,4%	Sim
		$V_{y,Ed}$ = 0,5 kN	$V_{y,Rd}$ = 15,0 kN	3,5%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	3,6%	Sim
		N_{Ed} = 5,4 kN	N_{Rd} = 20,0 kN	27,1%	Sim
		$M_{x,Ed}$ = 0,005 kN·m	---	---	---
		$M_{y,Ed}$ = 0,101 kN·m	---	---	---
94: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,015 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	7,2%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,6%	Sim
		$M_{x,Ed}$ = 0,012 kN·m	---	---	---
		$M_{y,Ed}$ = 0,142 kN·m	---	---	---
Diagonais					
96: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 10,6 kN	$N_{c,Rd}$ = 7,0 kN	151,2%	Não
		$N_{t,Ed}$ = 0,0 kN	$N_{t,Rd}$ = 7,0 kN	0,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,041 kN·m	---	---	---
		$M_{y,Ed}$ = 0,051 kN·m	---	---	---
		$M_{z,Ed}$ = 0,035 kN·m	---	---	---
97: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 11,5 kN	$N_{c,Rd}$ = 7,0 kN	163,6%	Não
		$N_{t,Ed}$ = 10,9 kN	$N_{t,Rd}$ = 7,0 kN	155,8%	Não
		$V_{y,Ed}$ = 0,1 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,007 kN·m	---	---	---
		$M_{y,Ed}$ = 0,017 kN·m	---	---	---
		$M_{z,Ed}$ = 0,018 kN·m	---	---	---
98: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 1,9 kN	$N_{c,Rd}$ = 7,0 kN	27,8%	Sim
		$N_{t,Ed}$ = 1,3 kN	$N_{t,Rd}$ = 7,0 kN	19,1%	Sim
		$V_{y,Ed}$ = 0,0 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,016 kN·m	---	---	---
		$M_{y,Ed}$ = 0,022 kN·m	---	---	---
		$M_{z,Ed}$ = 0,028 kN·m	---	---	---

Nó 39 [+0; +800; +2231] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
68: CHSH 48.3x3.2 101: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,8 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	1,2%	Sim
Travessas / longarinas					
90: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,017 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,8%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,1%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,3%	Sim
		N_{Ed} = 0,8 kN	N_{Rd} = 20,0 kN	4,2%	Sim
		$M_{x,Ed}$ = 0,008 kN·m	---	---	---
		$M_{y,Ed}$ = 0,098 kN·m	---	---	---
99: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,037 kN·m	$M_{z,Rd}$ = 0,600 kN·m	6,2%	Sim
		$V_{y,Ed}$ = 0,5 kN	$V_{y,Rd}$ = 15,0 kN	3,5%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	8,2%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	1,8%	Sim
		$M_{x,Ed}$ = 0,005 kN·m	---	---	---
		$M_{y,Ed}$ = 0,214 kN·m	---	---	---
100: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,028 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,7%	Sim
		N_{Ed} = 0,8 kN	N_{Rd} = 20,0 kN	4,1%	Sim
		$M_{x,Ed}$ = 0,016 kN·m	---	---	---
		$M_{y,Ed}$ = 0,074 kN·m	---	---	---
Diagonais					
5: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 1,3 kN	$N_{c,Rd}$ = 7,0 kN	18,6%	Sim
		$N_{t,Ed}$ = 0,4 kN	$N_{t,Rd}$ = 7,0 kN	6,2%	Sim
		$V_{y,Ed}$ = 0,0 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,008 kN·m	---	---	---
		$M_{y,Ed}$ = 0,011 kN·m	---	---	---
		$M_{z,Ed}$ = 0,015 kN·m	---	---	---

Nó 40 [+109; +800; +2231] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
70: CHSH 48.3x3.2 103: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 1,2 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	1,9%	Sim
Travessas / longarinas					

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
94: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,010 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,7%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,1%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,3%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,6%	Sim
		$M_{x,Ed}$ = 0,012 kN·m	---	---	---
		$M_{y,Ed}$ = 0,010 kN·m	---	---	---
99: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,026 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,3%	Sim
		$V_{y,Ed}$ = 0,5 kN	$V_{y,Rd}$ = 15,0 kN	3,4%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	8,2%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	1,8%	Sim
		$M_{x,Ed}$ = 0,005 kN·m	---	---	---
		$M_{y,Ed}$ = 0,234 kN·m	---	---	---
102: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,022 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,5 kN	$V_{z,Rd}$ = 5,0 kN	9,8%	Sim
		N_{Ed} = 1,1 kN	N_{Rd} = 20,0 kN	5,7%	Sim
		$M_{x,Ed}$ = 0,019 kN·m	---	---	---
		$M_{y,Ed}$ = 0,197 kN·m	---	---	---
Diagonais					
10: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 2,1 kN	$N_{c,Rd}$ = 7,0 kN	29,5%	Sim
		$N_{t,Ed}$ = 0,0 kN	$N_{t,Rd}$ = 7,0 kN	0,0%	Sim
		$V_{y,Ed}$ = 0,0 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,011 kN·m	---	---	---
		$M_{y,Ed}$ = 0,009 kN·m	---	---	---
		$M_{z,Ed}$ = 0,012 kN·m	---	---	---

Nó 41 [+0; +800; +2438] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
72: CHSH 48.3x3.2 106: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,7 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	1,1%	Sim
Travessas / longarinas					
100: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,012 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,0%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,7%	Sim
		N_{Ed} = 0,8 kN	N_{Rd} = 20,0 kN	4,1%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$M_{x,Ed}$ = 0,016 kN·m	---	---	---
		$M_{y,Ed}$ = 0,105 kN·m	---	---	---
104: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,074 kN·m	$M_{z,Rd}$ = 0,600 kN·m	12,3%	Sim
		$V_{y,Ed}$ = 0,6 kN	$V_{y,Rd}$ = 15,0 kN	4,0%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,7%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,3%	Sim
		$M_{x,Ed}$ = 0,006 kN·m	---	---	---
		$M_{y,Ed}$ = 0,020 kN·m	---	---	---
105: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,027 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,7%	Sim
		N_{Ed} = 0,8 kN	N_{Rd} = 20,0 kN	3,8%	Sim
		$M_{x,Ed}$ = 0,012 kN·m	---	---	---
		$M_{y,Ed}$ = 0,105 kN·m	---	---	---

Nó 42 [+109; +800; +2438] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
74: CHSH 48.3x3.2 108: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,7 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	1,1%	Sim
Travessas / longarinas					
102: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,006 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,1%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	7,2%	Sim
		N_{Ed} = 1,1 kN	N_{Rd} = 20,0 kN	5,7%	Sim
		$M_{x,Ed}$ = 0,019 kN·m	---	---	---
		$M_{y,Ed}$ = 0,062 kN·m	---	---	---
104: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,071 kN·m	$M_{z,Rd}$ = 0,600 kN·m	11,8%	Sim
		$V_{y,Ed}$ = 0,6 kN	$V_{y,Rd}$ = 15,0 kN	4,0%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,7%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,3%	Sim
		$M_{x,Ed}$ = 0,006 kN·m	---	---	---
		$M_{y,Ed}$ = 0,020 kN·m	---	---	---
107: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,023 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	7,2%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		N_{Ed} = 1,0 kN	N_{Rd} = 20,0 kN	5,1%	Sim
		$M_{x,Ed}$ = 0,014 kN·m	---	---	---
		$M_{y,Ed}$ = 0,061 kN·m	---	---	---

Nó 43 [+0; +800; +2645] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
76: CHSH 48.3x3.2 111: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,4 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,7%	Sim
Travessas / longarinas					
105: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,010 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,7%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,7%	Sim
		N_{Ed} = 0,8 kN	N_{Rd} = 20,0 kN	3,8%	Sim
		$M_{x,Ed}$ = 0,012 kN·m	---	---	---
		$M_{y,Ed}$ = 0,072 kN·m	---	---	---
109: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,037 kN·m	$M_{z,Rd}$ = 0,600 kN·m	6,1%	Sim
		$V_{y,Ed}$ = 0,3 kN	$V_{y,Rd}$ = 15,0 kN	2,2%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	8,4%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	1,2%	Sim
		$M_{x,Ed}$ = 0,008 kN·m	---	---	---
		$M_{y,Ed}$ = 0,220 kN·m	---	---	---
110: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,022 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,4%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,5%	Sim
		$M_{x,Ed}$ = 0,012 kN·m	---	---	---
		$M_{y,Ed}$ = 0,104 kN·m	---	---	---

Nó 44 [+109; +800; +2645] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
78: CHSH 48.3x3.2 114: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 3,0 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	4,6%	Sim
Travessas / longarinas					

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
107: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,006 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,0%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,5 kN	$V_{z,Rd}$ = 5,0 kN	9,7%	Sim
		N_{Ed} = 1,0 kN	N_{Rd} = 20,0 kN	5,1%	Sim
		$M_{x,Ed}$ = 0,014 kN·m	---	---	---
		$M_{y,Ed}$ = 0,195 kN·m	---	---	---
109: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,038 kN·m	$M_{z,Rd}$ = 0,600 kN·m	6,3%	Sim
		$V_{y,Ed}$ = 0,3 kN	$V_{y,Rd}$ = 15,0 kN	2,2%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	8,4%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	1,2%	Sim
		$M_{x,Ed}$ = 0,008 kN·m	---	---	---
		$M_{y,Ed}$ = 0,240 kN·m	---	---	---
112: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,035 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,2%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,5%	Sim
		$M_{x,Ed}$ = 0,024 kN·m	---	---	---
		$M_{y,Ed}$ = 0,010 kN·m	---	---	---
113: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,014 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,9%	Sim
		N_{Ed} = 1,0 kN	N_{Rd} = 20,0 kN	4,9%	Sim
		$M_{x,Ed}$ = 0,010 kN·m	---	---	---
		$M_{y,Ed}$ = 0,016 kN·m	---	---	---
Diagonais					
115: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 2,9 kN	$N_{c,Rd}$ = 7,0 kN	41,1%	Sim
		$N_{t,Ed}$ = 1,3 kN	$N_{t,Rd}$ = 7,0 kN	18,2%	Sim
		$V_{y,Ed}$ = 0,0 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,003 kN·m	---	---	---
		$M_{y,Ed}$ = 0,010 kN·m	---	---	---
		$M_{z,Ed}$ = 0,023 kN·m	---	---	---

Nó 45 [+416; +800; +2645] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
30: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,3 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,5%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
118: CHSH 48.3x3.2					
Travessas / longarinas					
112: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,039 kN·m	$M_{z,Rd}$ = 0,600 kN·m	6,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,2%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,5%	Sim
		$M_{x,Ed}$ = 0,024 kN·m	---	---	---
		$M_{y,Ed}$ = 0,014 kN·m	---	---	---
116: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,038 kN·m	$M_{z,Rd}$ = 0,600 kN·m	6,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,8%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	1,0%	Sim
		$M_{x,Ed}$ = 0,003 kN·m	---	---	---
		$M_{y,Ed}$ = 0,063 kN·m	---	---	---
117: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,073 kN·m	$M_{z,Rd}$ = 0,600 kN·m	12,2%	Sim
		$V_{y,Ed}$ = 0,2 kN	$V_{y,Rd}$ = 15,0 kN	1,0%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,6%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,1%	Sim
		$M_{x,Ed}$ = 0,014 kN·m	---	---	---
		$M_{y,Ed}$ = 0,047 kN·m	---	---	---

Nó 46 [+723; +800; +2645] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
32: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,3%	Sim
Travessas / longarinas					
116: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,034 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,8%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	1,0%	Sim
		$M_{x,Ed}$ = 0,003 kN·m	---	---	---
		$M_{y,Ed}$ = 0,060 kN·m	---	---	---
119: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,066 kN·m	$M_{z,Rd}$ = 0,600 kN·m	11,1%	Sim
		$V_{y,Ed}$ = 0,2 kN	$V_{y,Rd}$ = 15,0 kN	1,0%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	3,2%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,1%	Sim
		$M_{x,Ed}$ = 0,014 kN·m	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$M_{y,Ed}$ = 0,074 kN·m	---	---	---

Nó 47 [+0; +800; +2754] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
80: CHSH 48.3x3.2 121: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
110: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,020 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,3%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,1%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,4%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,5%	Sim
		$M_{x,Ed}$ = 0,012 kN·m	---	---	---
		$M_{y,Ed}$ = 0,134 kN·m	---	---	---
120: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,014 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,9%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,7%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	1,8%	Sim
		$M_{x,Ed}$ = 0,008 kN·m	---	---	---
		$M_{y,Ed}$ = 0,122 kN·m	---	---	---

Nó 48 [+109; +800; +2754] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
81: CHSH 48.3x3.2 123: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,7 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	1,1%	Sim
Travessas / longarinas					
113: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,012 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,0%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,1%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	7,2%	Sim
		N_{Ed} = 1,0 kN	N_{Rd} = 20,0 kN	4,9%	Sim
		$M_{x,Ed}$ = 0,010 kN·m	---	---	---
		$M_{y,Ed}$ = 0,135 kN·m	---	---	---
120: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,018 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	1,0%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,7%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	1,8%	Sim
		$M_{x,Ed}$ = 0,008 kN·m	---	---	---
		$M_{y,Ed}$ = 0,133 kN·m	---	---	---
122: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,024 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,1%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,4%	Sim
		N_{Ed} = 2,2 kN	N_{Rd} = 20,0 kN	10,8%	Sim
		$M_{x,Ed}$ = 0,023 kN·m	---	---	---
		$M_{y,Ed}$ = 0,034 kN·m	---	---	---
Diagonais					
27: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 2,5 kN	$N_{c,Rd}$ = 7,0 kN	35,9%	Sim
		$N_{t,Ed}$ = 2,7 kN	$N_{t,Rd}$ = 7,0 kN	38,4%	Sim
		$V_{y,Ed}$ = 0,0 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,003 kN·m	---	---	---
		$M_{y,Ed}$ = 0,005 kN·m	---	---	---
		$M_{z,Ed}$ = 0,011 kN·m	---	---	---
38: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 3,5 kN	$N_{c,Rd}$ = 7,0 kN	50,6%	Sim
		$N_{t,Ed}$ = 3,5 kN	$N_{t,Rd}$ = 7,0 kN	49,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,006 kN·m	---	---	---
		$M_{y,Ed}$ = 0,016 kN·m	---	---	---
		$M_{z,Ed}$ = 0,026 kN·m	---	---	---

Nó 49 [+416; +800; +2754] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
39: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 1,8 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	2,8%	Sim
126: CHSH 48.3x3.2					
Travessas / longarinas					
117: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,073 kN·m	$M_{z,Rd}$ = 0,600 kN·m	12,2%	Sim
		$V_{y,Ed}$ = 0,2 kN	$V_{y,Rd}$ = 15,0 kN	1,1%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,6%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,1%	Sim
		$M_{x,Ed}$ = 0,014 kN·m	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$M_{y,Ed}$ = 0,043 kN·m	---	---	---
122: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,026 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,4%	Sim
		N_{Ed} = 2,2 kN	N_{Rd} = 20,0 kN	10,8%	Sim
		$M_{x,Ed}$ = 0,023 kN·m	---	---	---
		$M_{y,Ed}$ = 0,024 kN·m	---	---	---
124: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,026 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,7%	Sim
		N_{Ed} = 4,4 kN	N_{Rd} = 20,0 kN	21,9%	Sim
		$M_{x,Ed}$ = 0,001 kN·m	---	---	---
		$M_{y,Ed}$ = 0,057 kN·m	---	---	---
Diagonais					
40: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 5,8 kN	$N_{c,Rd}$ = 7,0 kN	83,1%	Sim
		$N_{t,Ed}$ = 6,1 kN	$N_{t,Rd}$ = 7,0 kN	87,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,005 kN·m	---	---	---
		$M_{y,Ed}$ = 0,033 kN·m	---	---	---
		$M_{z,Ed}$ = 0,026 kN·m	---	---	---
125: CHSH 48.3x2,3	Acero D01	$N_{c,Ed}$ = 3,3 kN	$N_{c,Rd}$ = 8,0 kN	41,1%	Sim
		$N_{t,Ed}$ = 3,1 kN	$N_{t,Rd}$ = 8,0 kN	38,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,010 kN·m	---	---	---
		$M_{y,Ed}$ = 0,037 kN·m	---	---	---
		$M_{z,Ed}$ = 0,027 kN·m	---	---	---

Nó 50 [+723; +800; +2754] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
41: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 3,0 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	4,6%	Sim
Travessas / longarinas					
119: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,076 kN·m	$M_{z,Rd}$ = 0,600 kN·m	12,7%	Sim
		$V_{y,Ed}$ = 0,2 kN	$V_{y,Rd}$ = 15,0 kN	1,1%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	3,2%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,1%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$M_{x,Ed}$ = 0,014 kN·m	---	---	---
		$M_{y,Ed}$ = 0,101 kN·m	---	---	---
124: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,021 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,7%	Sim
		N_{Ed} = 4,4 kN	N_{Rd} = 20,0 kN	21,9%	Sim
		$M_{x,Ed}$ = 0,001 kN·m	---	---	---
		$M_{y,Ed}$ = 0,043 kN·m	---	---	---
Diagonais					
127: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 5,0 kN	$N_{c,Rd}$ = 7,0 kN	71,3%	Sim
		$N_{t,Ed}$ = 5,0 kN	$N_{t,Rd}$ = 7,0 kN	71,1%	Sim
		$V_{y,Ed}$ = 0,1 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,002 kN·m	---	---	---
		$M_{y,Ed}$ = 0,057 kN·m	---	---	---
		$M_{z,Ed}$ = 0,022 kN·m	---	---	---

Nó 51 [+0; +850; +1815] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
84: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,1%	Sim
129: CHSH 48.3x3.2					
Travessas / longarinas					
128: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,023 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,7%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,5%	Sim
		$M_{x,Ed}$ = 0,047 kN·m	---	---	---
		$M_{y,Ed}$ = 0,027 kN·m	---	---	---

Nó 52 [+109; +850; +1815] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
87: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,1%	Sim
131: CHSH 48.3x3.2					

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Travessas / longarinas					
130: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,023 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,7%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,3%	Sim
		$M_{x,Ed}$ = 0,051 kN·m	---	---	---
		$M_{y,Ed}$ = 0,028 kN·m	---	---	---

Nó 53 [+0; +850; +2122] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
91: CHSH 48.3x3.2 133: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
128: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,021 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,7%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,5%	Sim
		$M_{x,Ed}$ = 0,047 kN·m	---	---	---
		$M_{y,Ed}$ = 0,074 kN·m	---	---	---
132: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,022 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,4%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,4%	Sim
		$M_{x,Ed}$ = 0,024 kN·m	---	---	---
		$M_{y,Ed}$ = 0,081 kN·m	---	---	---

Nó 54 [+109; +850; +2122] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
95: CHSH 48.3x3.2 135: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
130: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,023 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,7%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,3%	Sim
		$M_{x,Ed}$ = 0,051 kN·m	---	---	---
		$M_{y,Ed}$ = 0,077 kN·m	---	---	---
134: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,013 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,1%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,3%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,4%	Sim
		$M_{x,Ed}$ = 0,031 kN·m	---	---	---
		$M_{y,Ed}$ = 0,082 kN·m	---	---	---

Nó 55 [+0; +850; +2231] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
101: CHSH 48.3x3.2 137: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,1%	Sim
Travessas / longarinas					
132: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,017 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,9%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,4%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,4%	Sim
		$M_{x,Ed}$ = 0,024 kN·m	---	---	---
		$M_{y,Ed}$ = 0,007 kN·m	---	---	---
136: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,029 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,2%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,3%	Sim
		$M_{x,Ed}$ = 0,018 kN·m	---	---	---
		$M_{y,Ed}$ = 0,032 kN·m	---	---	---

Nó 56 [+109; +850; +2231] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
103: CHSH 48.3x3.2 139: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,1%	Sim
Travessas / longarinas					

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
134: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,009 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,4%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,3%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,4%	Sim
		$M_{x,Ed}$ = 0,031 kN·m	---	---	---
		$M_{y,Ed}$ = 0,014 kN·m	---	---	---
138: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,021 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,2%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,3%	Sim
		$M_{x,Ed}$ = 0,023 kN·m	---	---	---
		$M_{y,Ed}$ = 0,027 kN·m	---	---	---

Nó 57 [+0; +850; +2438] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
106: CHSH 48.3x3.2 141: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
136: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,012 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,0%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,2%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,3%	Sim
		$M_{x,Ed}$ = 0,018 kN·m	---	---	---
		$M_{y,Ed}$ = 0,094 kN·m	---	---	---
140: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,027 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,1%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	1,2%	Sim
		$M_{x,Ed}$ = 0,010 kN·m	---	---	---
		$M_{y,Ed}$ = 0,090 kN·m	---	---	---

Nó 58 [+109; +850; +2438] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
108: CHSH	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0	0,2%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
48.3x3.2 143: CHSH 48.3x3.2			kN		
Travessas / longarinas					
138: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,005 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,2%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,3%	Sim
		$M_{x,Ed}$ = 0,023 kN·m	---	---	---
		$M_{y,Ed}$ = 0,094 kN·m	---	---	---
142: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,021 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,1%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,3%	Sim
		$M_{x,Ed}$ = 0,010 kN·m	---	---	---
		$M_{y,Ed}$ = 0,089 kN·m	---	---	---

Nó 59 [+0; +850; +2645] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
111: CHSH 48.3x3.2 145: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
140: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,010 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,6%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,1%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	1,2%	Sim
		$M_{x,Ed}$ = 0,010 kN·m	---	---	---
		$M_{y,Ed}$ = 0,025 kN·m	---	---	---
144: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,021 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,0%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	1,0%	Sim
		$M_{x,Ed}$ = 0,010 kN·m	---	---	---
		$M_{y,Ed}$ = 0,012 kN·m	---	---	---

Nó 60 [+109; +850; +2645] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
114: CHSH 48.3x3.2 147: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,1%	Sim
Travessas / longarinas					
142: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,006 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,1%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,3%	Sim
		$M_{x,Ed}$ = 0,010 kN·m	---	---	---
		$M_{y,Ed}$ = 0,022 kN·m	---	---	---
146: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,012 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,9%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,7%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	1,0%	Sim
		$M_{x,Ed}$ = 0,012 kN·m	---	---	---
		$M_{y,Ed}$ = 0,003 kN·m	---	---	---

Nó 61 [+0; +850; +2754] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
121: CHSH 48.3x3.2 149: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,1%	Sim
Travessas / longarinas					
144: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,018 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,0%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,1%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,0%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	1,0%	Sim
		$M_{x,Ed}$ = 0,010 kN·m	---	---	---
		$M_{y,Ed}$ = 0,103 kN·m	---	---	---
148: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,014 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,0%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,2%	Sim
		$M_{x,Ed}$ = 0,009 kN·m	---	---	---
		$M_{y,Ed}$ = 0,109 kN·m	---	---	---

Nó 62 [+109; +850; +2754] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
123: CHSH 48.3x3.2 150: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,1%	Sim
Travessas / longarinas					
146: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,009 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,5%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,1%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,7%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	1,0%	Sim
		$M_{x,Ed}$ = 0,012 kN·m	---	---	---
		$M_{v,Ed}$ = 0,097 kN·m	---	---	---
148: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,013 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,1%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,0%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,2%	Sim
		$M_{x,Ed}$ = 0,009 kN·m	---	---	---
		$M_{y,Ed}$ = 0,111 kN·m	---	---	---

Nó 63 [+0; +900; +1815] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
129: CHSH 48.3x3.2 152: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,5 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,7%	Sim
Travessas / longarinas					
151: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,022 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,3%	Sim
		N_{Ed} = 0,7 kN	N_{Rd} = 20,0 kN	3,6%	Sim
		$M_{x,Ed}$ = 0,059 kN·m	---	---	---
		$M_{y,Ed}$ = 0,067 kN·m	---	---	---
Diagonais					
63: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 1,1 kN	$N_{c,Rd}$ = 7,0 kN	15,4%	Sim
		$N_{t,Ed}$ = 0,0 kN	$N_{t,Rd}$ = 7,0 kN	0,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,019 kN·m	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$M_{y,Ed}$ = 0,045 kN·m	---	---	---
		$M_{z,Ed}$ = 0,029 kN·m	---	---	---

Nó 64 [+109; +900; +1815] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
131: CHSH 48.3x3.2 154: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,4 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,6%	Sim
Travessas / longarinas					
153: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,018 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,4%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	3,0%	Sim
		$M_{x,Ed}$ = 0,062 kN·m	---	---	---
		$M_{y,Ed}$ = 0,073 kN·m	---	---	---
Diagonais					
66: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 0,9 kN	$N_{c,Rd}$ = 7,0 kN	13,4%	Sim
		$N_{t,Ed}$ = 0,0 kN	$N_{t,Rd}$ = 7,0 kN	0,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,018 kN·m	---	---	---
		$M_{y,Ed}$ = 0,047 kN·m	---	---	---
		$M_{z,Ed}$ = 0,027 kN·m	---	---	---

Nó 65 [+0; +900; +2122] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
133: CHSH 48.3x3.2 156: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
151: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,030 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,3%	Sim
		N_{Ed} = 0,7 kN	N_{Rd} = 20,0 kN	3,6%	Sim
		$M_{x,Ed}$ = 0,059 kN·m	---	---	---
		$M_{y,Ed}$ = 0,127	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		kN·m			
155: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,008 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,3%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	3,0%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	3,1%	Sim
		$M_{x,Ed}$ = 0,041 kN·m	---	---	---
		$M_{y,Ed}$ = 0,139 kN·m	---	---	---

Nó 66 [+109; +900; +2122] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
135: CHSH 48.3x3.2 158: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
153: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,029 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,4%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	3,0%	Sim
		$M_{x,Ed}$ = 0,062 kN·m	---	---	---
		$M_{y,Ed}$ = 0,136 kN·m	---	---	---
157: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,004 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,7%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	3,5%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,5%	Sim
		$M_{x,Ed}$ = 0,047 kN·m	---	---	---
		$M_{y,Ed}$ = 0,158 kN·m	---	---	---

Nó 67 [+0; +900; +2231] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
137: CHSH 48.3x3.2 160: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,1%	Sim
Travessas / longarinas					
155: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,004 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,7%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	3,0%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	3,1%	Sim
		$M_{x,Ed}$ = 0,041 kN·m	---	---	---
		$M_{y,Ed}$ = 0,032 kN·m	---	---	---
159: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,018 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,3%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,5%	Sim
		$M_{x,Ed}$ = 0,018 kN·m	---	---	---
		$M_{y,Ed}$ = 0,028 kN·m	---	---	---

Nó 68 [+109; +900; +2231] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
139: CHSH 48.3x3.2 162: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,1%	Sim
Travessas / longarinas					
157: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,008 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,4%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	3,5%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,5%	Sim
		$M_{x,Ed}$ = 0,047 kN·m	---	---	---
		$M_{y,Ed}$ = 0,042 kN·m	---	---	---
161: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,009 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,3%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,1%	Sim
		$M_{x,Ed}$ = 0,019 kN·m	---	---	---
		$M_{y,Ed}$ = 0,022 kN·m	---	---	---

Nó 69 [+0; +900; +2438] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
141: CHSH 48.3x3.2 164: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
159: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,004 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,3%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,5%	Sim
		$M_{x,Ed}$ = 0,018 kN·m	---	---	---
		$M_{y,Ed}$ = 0,112 kN·m	---	---	---
163: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,016 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,2%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,0%	Sim
		$M_{x,Ed}$ = 0,018 kN·m	---	---	---
		$M_{y,Ed}$ = 0,101 kN·m	---	---	---

Nó 70 [+109; +900; +2438] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
143: CHSH 48.3x3.2 166: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
161: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,009 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,3%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,1%	Sim
		$M_{x,Ed}$ = 0,019 kN·m	---	---	---
		$M_{y,Ed}$ = 0,113 kN·m	---	---	---
165: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,010 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,2%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,7%	Sim
		$M_{x,Ed}$ = 0,017 kN·m	---	---	---
		$M_{y,Ed}$ = 0,099 kN·m	---	---	---

Nó 71 [+0; +900; +2645] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
145: CHSH	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0	0,1%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
48.3x3.2 168: CHSH 48.3x3.2			kN		
Travessas / longarinas					
163: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,006 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,2%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,0%	Sim
		$M_{x,Ed}$ = 0,018 kN·m	---	---	---
		$M_{y,Ed}$ = 0,025 kN·m	---	---	---
167: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,009 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,6%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,3%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,6%	Sim
		$M_{x,Ed}$ = 0,023 kN·m	---	---	---
		$M_{y,Ed}$ = 0,009 kN·m	---	---	---

Nó 72 [+109; +900; +2645] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
147: CHSH 48.3x3.2 170: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,1%	Sim
Travessas / longarinas					
165: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,010 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,2%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,7%	Sim
		$M_{x,Ed}$ = 0,017 kN·m	---	---	---
		$M_{y,Ed}$ = 0,021 kN·m	---	---	---
169: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,001 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,1%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,1%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,3%	Sim
		$M_{x,Ed}$ = 0,024 kN·m	---	---	---
		$M_{y,Ed}$ = 0,005 kN·m	---	---	---

Nó 73 [+0; +900; +2754] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
149: CHSH 48.3x3.2 172: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,1%	Sim
Travessas / longarinas					
167: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,006 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,0%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,3%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,6%	Sim
		$M_{x,Ed}$ = 0,023 kN·m	---	---	---
		$M_{y,Ed}$ = 0,124 kN·m	---	---	---
171: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,007 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,2%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 5,0 kN	5,0%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,1%	Sim
		$M_{x,Ed}$ = 0,006 kN·m	---	---	---
		$M_{y,Ed}$ = 0,136 kN·m	---	---	---

Nó 74 [+109; +900; +2754] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
150: CHSH 48.3x3.2 173: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,1%	Sim
Travessas / longarinas					
169: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,004 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,7%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,1%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,3%	Sim
		$M_{x,Ed}$ = 0,024 kN·m	---	---	---
		$M_{y,Ed}$ = 0,118 kN·m	---	---	---
171: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,005 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,8%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 5,0 kN	5,0%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,1%	Sim
		$M_{x,Ed}$ = 0,006 kN·m	---	---	---
		$M_{y,Ed}$ = 0,139 kN·m	---	---	---

Nó 75 [+0; +1000; -36] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
176: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 3,3 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	5,1%	Sim
Travessas / longarinas					
174: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,417 kN·m	$M_{z,Rd}$ = 0,600 kN·m	69,4%	Sim
		$V_{y,Ed}$ = 0,8 kN	$V_{y,Rd}$ = 15,0 kN	5,3%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,3%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,020 kN·m	---	---	---
		$M_{y,Ed}$ = 0,004 kN·m	---	---	---
175: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,033 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,5%	Sim
		$V_{y,Ed}$ = 0,2 kN	$V_{y,Rd}$ = 15,0 kN	1,1%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,3%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,003 kN·m	---	---	---
		$M_{y,Ed}$ = 0,009 kN·m	---	---	---

Nó 76 [+109; +1000; -36] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
178: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 6,8 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	10,4%	Sim
Travessas / longarinas					
174: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,419 kN·m	$M_{z,Rd}$ = 0,600 kN·m	69,9%	Sim
		$V_{y,Ed}$ = 0,8 kN	$V_{y,Rd}$ = 15,0 kN	5,3%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,3%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,020 kN·m	---	---	---
		$M_{y,Ed}$ = 0,014 kN·m	---	---	---
177: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,010 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,9%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,7%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,007 kN·m	---	---	---
		$M_{y,Ed}$ = 0,019 kN·m	---	---	---
Diagonais					
179: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 3,9 kN	$N_{c,Rd}$ = 7,0 kN	55,3%	Sim
		$N_{t,Ed}$ = 0,0 kN	$N_{t,Rd}$ = 7,0 kN	0,0%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$V_{y,Ed}$ = 0,0 kN	---	---	---
		$V_{z,Ed}$ = 0,1 kN	---	---	---
		$M_{x,Ed}$ = 0,012 kN·m	---	---	---
		$M_{y,Ed}$ = 0,071 kN·m	---	---	---
		$M_{z,Ed}$ = 0,012 kN·m	---	---	---

Nó 77 [+0; +1000; +73] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
182: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 6,3 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	9,7%	Sim
Travessas / longarinas					
175: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,018 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,9%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,3%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,003 kN·m	---	---	---
		$M_{y,Ed}$ = 0,010 kN·m	---	---	---
180: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,425 kN·m	$M_{z,Rd}$ = 0,600 kN·m	70,8%	Sim
		$V_{y,Ed}$ = 1,0 kN	$V_{y,Rd}$ = 15,0 kN	6,6%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,2%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,018 kN·m	---	---	---
		$M_{y,Ed}$ = 0,037 kN·m	---	---	---
181: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,034 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,2%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,031 kN·m	---	---	---
		$M_{y,Ed}$ = 0,006 kN·m	---	---	---

Nó 78 [+109; +1000; +73] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
184: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,7 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	1,1%	Sim
Travessas / longarinas					
177: CHSH	Acero Tub T02	$M_{z,Ed}$ = 0,007	$M_{z,Rd}$ = 0,600	1,1%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
48.3x3.2		kN·m	kN·m		
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,8%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	7,2%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,007 kN·m	---	---	---
		$M_{y,Ed}$ = 0,134 kN·m	---	---	---
180: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,422 kN·m	$M_{z,Rd}$ = 0,600 kN·m	70,3%	Sim
		$V_{y,Ed}$ = 1,0 kN	$V_{y,Rd}$ = 15,0 kN	6,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,2%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,018 kN·m	---	---	---
		$M_{y,Ed}$ = 0,082 kN·m	---	---	---
183: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,018 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,5 kN	$V_{z,Rd}$ = 5,0 kN	10,5%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,031 kN·m	---	---	---
		$M_{y,Ed}$ = 0,210 kN·m	---	---	---

Nó 79 [+0; +1000; +330] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
187: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 9,3 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	14,3%	Sim
Travessas / longarinas					
181: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,021 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,2%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,031 kN·m	---	---	---
		$M_{y,Ed}$ = 0,016 kN·m	---	---	---
185: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,525 kN·m	$M_{z,Rd}$ = 0,600 kN·m	87,6%	Sim
		$V_{y,Ed}$ = 1,4 kN	$V_{y,Rd}$ = 15,0 kN	9,3%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,0%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,019 kN·m	---	---	---
		$M_{y,Ed}$ = 0,017 kN·m	---	---	---
186: CHSH	Acero Tub T02	$M_{z,Ed}$ = 0,042 kN·m	$M_{z,Rd}$ = 0,600 kN·m	7,0%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
48.3x3.2		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,1%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,006 kN·m	---	---	---
		$M_{y,Ed}$ = 0,012 kN·m	---	---	---

Nó 80 [+109; +1000; +330] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
189: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 12,4 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	19,1%	Sim
Travessas / longarinas					
183: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,014 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,5 kN	$V_{z,Rd}$ = 5,0 kN	10,2%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,031 kN·m	---	---	---
		$M_{y,Ed}$ = 0,193 kN·m	---	---	---
185: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,519 kN·m	$M_{z,Rd}$ = 0,600 kN·m	86,4%	Sim
		$V_{y,Ed}$ = 1,4 kN	$V_{y,Rd}$ = 15,0 kN	9,2%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,0%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,019 kN·m	---	---	---
		$M_{y,Ed}$ = 0,093 kN·m	---	---	---
188: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,026 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,5%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,003 kN·m	---	---	---
		$M_{y,Ed}$ = 0,044 kN·m	---	---	---

Nó 81 [+0; +1000; +637] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
192: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 9,4 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	14,4%	Sim
Travessas / longarinas					
186: CHSH	Acero Tub T02	$M_{z,Ed}$ = 0,028 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,6%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
48.3x3.2		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,1%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,006 kN·m	---	---	---
		$M_{y,Ed}$ = 0,004 kN·m	---	---	---
190: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,508 kN·m	$M_{z,Rd}$ = 0,600 kN·m	84,7%	Sim
		$V_{y,Ed}$ = 1,4 kN	$V_{y,Rd}$ = 15,0 kN	9,1%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	1,0%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,017 kN·m	---	---	---
		$M_{y,Ed}$ = 0,023 kN·m	---	---	---
191: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,037 kN·m	$M_{z,Rd}$ = 0,600 kN·m	6,1%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,3%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,061 kN·m	---	---	---
		$M_{y,Ed}$ = 0,017 kN·m	---	---	---

Nó 82 [+109; +1000; +637] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
194: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 8,0 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	12,2%	Sim
Travessas / longarinas					
188: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,019 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,5%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,003 kN·m	---	---	---
		$M_{y,Ed}$ = 0,029 kN·m	---	---	---
190: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,508 kN·m	$M_{z,Rd}$ = 0,600 kN·m	84,6%	Sim
		$V_{y,Ed}$ = 1,4 kN	$V_{y,Rd}$ = 15,0 kN	9,0%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	1,0%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,017 kN·m	---	---	---
		$M_{y,Ed}$ = 0,030 kN·m	---	---	---
193: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,021 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,4%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,064 kN·m	---	---	---
		$M_{y,Ed}$ = 0,021 kN·m	---	---	---
Diagonais					
195: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 0,0 kN	$N_{c,Rd}$ = 7,0 kN	0,0%	Sim
		$N_{t,Ed}$ = 2,2 kN	$N_{t,Rd}$ = 7,0 kN	30,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,003 kN·m	---	---	---
		$M_{y,Ed}$ = 0,058 kN·m	---	---	---
		$M_{z,Ed}$ = 0,033 kN·m	---	---	---

Nó 83 [+0; +1000; +894] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
198: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 9,2 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	14,2%	Sim
Travessas / longarinas					
191: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,021 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,3%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,061 kN·m	---	---	---
		$M_{y,Ed}$ = 0,027 kN·m	---	---	---
196: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,327 kN·m	$M_{z,Rd}$ = 0,600 kN·m	54,5%	Sim
		$V_{y,Ed}$ = 1,0 kN	$V_{y,Rd}$ = 15,0 kN	6,9%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,9%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,020 kN·m	---	---	---
		$M_{y,Ed}$ = 0,083 kN·m	---	---	---
197: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,043 kN·m	$M_{z,Rd}$ = 0,600 kN·m	7,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,4%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,067 kN·m	---	---	---
		$M_{y,Ed}$ = 0,008 kN·m	---	---	---

Nó 84 [+109; +1000; +894] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
200: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 14,5 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	22,3%	Sim
Travessas / longarinas					
193: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,014 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,4%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,064 kN·m	---	---	---
		$M_{y,Ed}$ = 0,026 kN·m	---	---	---
196: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,318 kN·m	$M_{z,Rd}$ = 0,600 kN·m	53,1%	Sim
		$V_{y,Ed}$ = 1,0 kN	$V_{y,Rd}$ = 15,0 kN	6,8%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,9%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,020 kN·m	---	---	---
		$M_{y,Ed}$ = 0,077 kN·m	---	---	---
199: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,026 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,2%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,066 kN·m	---	---	---
		$M_{y,Ed}$ = 0,002 kN·m	---	---	---

Nó 85 [+0; +1000; +1201] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
203: CHSH 48.3x3.2	Acero R01	$\Sigma V_{y,Ed}$ = 18,0 kN	$\Sigma V_{y,Rd}$ = 100,0 kN	18,0%	Sim
Travessas / longarinas					
197: CHSH 48.3x3.2	Acero Tub T01	$M_{z,Ed}$ = 0,028 kN·m	$M_{z,Rd}$ = 1,000 kN·m	2,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 25,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 8,0 kN	0,2%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 30,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,067 kN·m	---	---	---
		$M_{y,Ed}$ = 0,047 kN·m	---	---	---
201: CHSH 48.3x3.2	Acero Tub T01	$M_{z,Ed}$ = 0,093 kN·m	$M_{z,Rd}$ = 1,000 kN·m	9,3%	Sim
		$V_{y,Ed}$ = 0,6 kN	$V_{y,Rd}$ = 25,0 kN	2,6%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 8,0 kN	4,4%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 30,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,016 kN·m	---	---	---
		$M_{y,Ed}$ = 0,210 kN·m	---	---	---
202: CHSH 48.3x3.2	Acero Tub T01	$M_{z,Ed}$ = 0,065 kN·m	$M_{z,Rd}$ = 1,000 kN·m	6,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 25,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 8,0 kN	1,8%	Sim
		N_{Ed} = 21,5 kN	N_{Rd} = 30,0 kN	71,6%	Sim
		$M_{x,Ed}$ = 0,034 kN·m	---	---	---
		$M_{y,Ed}$ = 0,225 kN·m	---	---	---

Nó 86 [+109; +1000; +1201] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
205: CHSH 48.3x3.2	Acero R01	$\Sigma V_{y,Ed}$ = 11,4 kN	$\Sigma V_{y,Rd}$ = 100,0 kN	11,4%	Sim
Travessas / longarinas					
199: CHSH 48.3x3.2	Acero Tub T01	$M_{z,Ed}$ = 0,019 kN·m	$M_{z,Rd}$ = 1,000 kN·m	1,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 25,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 8,0 kN	0,1%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 30,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,066 kN·m	---	---	---
		$M_{y,Ed}$ = 0,026 kN·m	---	---	---
201: CHSH 48.3x3.2	Acero Tub T01	$M_{z,Ed}$ = 0,090 kN·m	$M_{z,Rd}$ = 1,000 kN·m	9,0%	Sim
		$V_{y,Ed}$ = 0,6 kN	$V_{y,Rd}$ = 25,0 kN	2,5%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 8,0 kN	4,4%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 30,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,016 kN·m	---	---	---
		$M_{y,Ed}$ = 0,177 kN·m	---	---	---
204: CHSH 48.3x3.2	Acero Tub T01	$M_{z,Ed}$ = 0,040 kN·m	$M_{z,Rd}$ = 1,000 kN·m	4,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 25,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 8,0 kN	2,0%	Sim
		N_{Ed} = 7,2 kN	N_{Rd} = 30,0 kN	23,9%	Sim
		$M_{x,Ed}$ = 0,033 kN·m	---	---	---
		$M_{y,Ed}$ = 0,247 kN·m	---	---	---
Diagonais					
206: CHSH 48.3x2,3	Acero D01	$N_{c,Ed}$ = 0,0 kN	$N_{c,Rd}$ = 8,3 kN	0,0%	Sim
		$N_{t,Ed}$ = 3,7 kN	$N_{t,Rd}$ = 17,0 kN	21,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,013 kN·m	---	---	---
		$M_{y,Ed}$ = 0,088 kN·m	---	---	---
		$M_{z,Ed}$ = 0,035 kN·m	---	---	---
207: CHSH 48.3x2,3	Acero D01	$N_{c,Ed}$ = 18,0 kN	$N_{c,Rd}$ = 15,0 kN	120,0%	Não
		$N_{t,Ed}$ = 16,7 kN	$N_{t,Rd}$ = 17,0 kN	98,3%	Sim
		$V_{y,Ed}$ = 0,0 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,005 kN·m	---	---	---
		$M_{y,Ed}$ = 0,046 kN·m	---	---	---
		$M_{z,Ed}$ = 0,037 kN·m	---	---	---

Erros de comprovação

Resistência à compressão da diagonal insuficiente

Nó 87 [+0; +1000; +1508] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
210: CHSH 48.3x3.2	Acero R01	$\Sigma V_{y,Ed}$ = 9,4 kN	$\Sigma V_{y,Rd}$ = 100,0 kN	9,4%	Sim
Travessas / longarinas					
202: CHSH 48.3x3.2	Acero Tub T01	$M_{z,Ed}$ = 0,021 kN·m	$M_{z,Rd}$ = 1,000 kN·m	2,1%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 25,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 8,0 kN	1,8%	Sim
		N_{Ed} = 21,5 kN	N_{Rd} = 30,0 kN	71,6%	Sim
		$M_{x,Ed}$ = 0,034 kN·m	---	---	---
		$M_{y,Ed}$ = 0,224 kN·m	---	---	---
208: CHSH 48.3x3.2	Acero Tub T01	$M_{z,Ed}$ = 0,184 kN·m	$M_{z,Rd}$ = 1,000 kN·m	18,4%	Sim
		$V_{y,Ed}$ = 0,8 kN	$V_{y,Rd}$ = 25,0 kN	3,1%	Sim
		$V_{z,Ed}$ = 0,6 kN	$V_{z,Rd}$ = 8,0 kN	7,0%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 30,0 kN	0,2%	Sim
		$M_{x,Ed}$ = 0,014 kN·m	---	---	---
		$M_{y,Ed}$ = 0,306 kN·m	---	---	---
209: CHSH 48.3x3.2	Acero Tub T01	$M_{z,Ed}$ = 0,016 kN·m	$M_{z,Rd}$ = 1,000 kN·m	1,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 25,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 8,0 kN	0,2%	Sim
		N_{Ed} = 6,7 kN	N_{Rd} = 30,0 kN	22,2%	Sim
		$M_{x,Ed}$ = 0,036 kN·m	---	---	---
		$M_{y,Ed}$ = 0,027 kN·m	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Diagonais					
85: CHSH 48.3x2,3	Acero D01	$N_{c,Ed}$ = 18,1 kN	$N_{c,Rd}$ = 8,3 kN	217,0%	Não
		$N_{t,Ed}$ = 0,0 kN	$N_{t,Rd}$ = 17,0 kN	0,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,019 kN·m	---	---	---
		$M_{y,Ed}$ = 0,032 kN·m	---	---	---
		$M_{z,Ed}$ = 0,031 kN·m	---	---	---

Erros de comprovação

Resistência à compressão da diagonal insuficiente

Nó 88 [+109; +1000; +1508] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
212: CHSH 48.3x3.2	Acero R01	$\Sigma V_{y,Ed}$ = 3,7 kN	$\Sigma V_{y,Rd}$ = 100,0 kN	3,7%	Sim
Travessas / longarinas					
204: CHSH 48.3x3.2	Acero Tub T01	$M_{z,Ed}$ = 0,018 kN·m	$M_{z,Rd}$ = 1,000 kN·m	1,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 25,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 8,0 kN	2,0%	Sim
		N_{Ed} = 7,2 kN	N_{Rd} = 30,0 kN	23,9%	Sim
		$M_{x,Ed}$ = 0,033 kN·m	---	---	---
		$M_{y,Ed}$ = 0,235 kN·m	---	---	---
208: CHSH 48.3x3.2	Acero Tub T01	$M_{z,Ed}$ = 0,227 kN·m	$M_{z,Rd}$ = 1,000 kN·m	22,7%	Sim
		$V_{y,Ed}$ = 0,9 kN	$V_{y,Rd}$ = 25,0 kN	3,5%	Sim
		$V_{z,Ed}$ = 0,6 kN	$V_{z,Rd}$ = 8,0 kN	7,0%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 30,0 kN	0,2%	Sim
		$M_{x,Ed}$ = 0,014 kN·m	---	---	---
		$M_{y,Ed}$ = 0,308 kN·m	---	---	---
211: CHSH 48.3x3.2	Acero Tub T01	$M_{z,Ed}$ = 0,015 kN·m	$M_{z,Rd}$ = 1,000 kN·m	1,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 25,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 8,0 kN	0,1%	Sim
		N_{Ed} = 1,6 kN	N_{Rd} = 30,0 kN	5,3%	Sim
		$M_{x,Ed}$ = 0,040 kN·m	---	---	---
		$M_{y,Ed}$ = 0,031 kN·m	---	---	---
Diagonais					
88: CHSH 48.3x2,3	Acero D01	$N_{c,Ed}$ = 7,9 kN	$N_{c,Rd}$ = 8,3 kN	94,4%	Sim
		$N_{t,Ed}$ = 0,0 kN	$N_{t,Rd}$ = 17,0 kN	0,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$M_{x,Ed}$ = 0,019 kN·m	---	---	---
		$M_{y,Ed}$ = 0,037 kN·m	---	---	---
		$M_{z,Ed}$ = 0,028 kN·m	---	---	---

Nó 89 [+0; +1000; +1815] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
152: CHSH 48.3x3.2 215: CHSH 48.3x3.2	Acero R01	$\Sigma V_{y,Ed}$ = 6,3 kN	$\Sigma V_{v,Rd}$ = 100,0 kN	6,3%	Sim
Travessas / longarinas					
209: CHSH 48.3x3.2	Acero Tub T01	$M_{z,Ed}$ = 0,050 kN·m	$M_{z,Rd}$ = 1,000 kN·m	5,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 25,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 8,0 kN	0,2%	Sim
		N_{Ed} = 6,7 kN	N_{Rd} = 30,0 kN	22,2%	Sim
		$M_{x,Ed}$ = 0,036 kN·m	---	---	---
		$M_{y,Ed}$ = 0,053 kN·m	---	---	---
213: CHSH 48.3x3.2	Acero Tub T01	$M_{z,Ed}$ = 0,308 kN·m	$M_{z,Rd}$ = 1,000 kN·m	30,8%	Sim
		$V_{y,Ed}$ = 1,0 kN	$V_{y,Rd}$ = 25,0 kN	4,1%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 8,0 kN	5,6%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 30,0 kN	0,1%	Sim
		$M_{x,Ed}$ = 0,013 kN·m	---	---	---
		$M_{y,Ed}$ = 0,246 kN·m	---	---	---
214: CHSH 48.3x3.2	Acero Tub T01	$M_{z,Ed}$ = 0,013 kN·m	$M_{z,Rd}$ = 1,000 kN·m	1,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 25,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 8,0 kN	1,9%	Sim
		N_{Ed} = 3,5 kN	N_{Rd} = 30,0 kN	11,7%	Sim
		$M_{x,Ed}$ = 0,019 kN·m	---	---	---
		$M_{y,Ed}$ = 0,215 kN·m	---	---	---
Diagonais					
92: CHSH 48.3x2,3	Acero D01	$N_{c,Ed}$ = 12,1 kN	$N_{c,Rd}$ = 8,3 kN	145,5%	Não
		$N_{t,Ed}$ = 0,0 kN	$N_{t,Rd}$ = 17,0 kN	0,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,039 kN·m	---	---	---
		$M_{y,Ed}$ = 0,025 kN·m	---	---	---
		$M_{z,Ed}$ = 0,028 kN·m	---	---	---

Erros de comprovação

Resistência à compressão da diagonal insuficiente

Nó 90 [+109; +1000; +1815] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
154: CHSH 48.3x3.2 217: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 3,2 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	4,9%	Sim
Travessas / longarinas					
211: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,031 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,2%	Sim
		N_{Ed} = 1,6 kN	N_{Rd} = 20,0 kN	7,9%	Sim
		$M_{x,Ed}$ = 0,040 kN·m	---	---	---
		$M_{y,Ed}$ = 0,049 kN·m	---	---	---
213: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,337 kN·m	$M_{z,Rd}$ = 0,600 kN·m	56,2%	Sim
		$V_{y,Ed}$ = 1,1 kN	$V_{y,Rd}$ = 15,0 kN	7,2%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	8,9%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,2%	Sim
		$M_{x,Ed}$ = 0,013 kN·m	---	---	---
		$M_{y,Ed}$ = 0,241 kN·m	---	---	---
216: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,018 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	3,0%	Sim
		N_{Ed} = 5,7 kN	N_{Rd} = 20,0 kN	28,3%	Sim
		$M_{x,Ed}$ = 0,006 kN·m	---	---	---
		$M_{y,Ed}$ = 0,213 kN·m	---	---	---
Diagonais					
96: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 10,5 kN	$N_{c,Rd}$ = 7,0 kN	150,1%	Não
		$N_{t,Ed}$ = 0,0 kN	$N_{t,Rd}$ = 7,0 kN	0,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,041 kN·m	---	---	---
		$M_{y,Ed}$ = 0,024 kN·m	---	---	---
		$M_{z,Ed}$ = 0,033 kN·m	---	---	---
218: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 3,8 kN	$N_{c,Rd}$ = 7,0 kN	54,8%	Sim
		$N_{t,Ed}$ = 0,0 kN	$N_{t,Rd}$ = 7,0 kN	0,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,005	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		kN·m			
		$M_{y,Ed}$ = 0,015 kN·m	---	---	---
		$M_{z,Ed}$ = 0,049 kN·m	---	---	---

Nó 91 [+0; +1000; +2122] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
156: CHSH 48.3x3.2 221: CHSH 48.3x3.2	Acero R01	$\Sigma V_{y,Ed}$ = 10,5 kN	$\Sigma V_{y,Rd}$ = 100,0 kN	10,5%	Sim
Travessas / longarinas					
214: CHSH 48.3x3.2	Acero Tub T01	$M_{z,Ed}$ = 0,045 kN·m	$M_{z,Rd}$ = 1,000 kN·m	4,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 25,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 8,0 kN	1,9%	Sim
		N_{Ed} = 3,5 kN	N_{Rd} = 30,0 kN	11,7%	Sim
		$M_{x,Ed}$ = 0,019 kN·m	---	---	---
		$M_{y,Ed}$ = 0,259 kN·m	---	---	---
219: CHSH 48.3x3.2	Acero Tub T01	$M_{z,Ed}$ = 0,246 kN·m	$M_{z,Rd}$ = 1,000 kN·m	24,6%	Sim
		$V_{y,Ed}$ = 0,8 kN	$V_{y,Rd}$ = 25,0 kN	3,3%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 8,0 kN	3,7%	Sim
		N_{Ed} = 2,9 kN	N_{Rd} = 30,0 kN	9,5%	Sim
		$M_{x,Ed}$ = 0,014 kN·m	---	---	---
		$M_{y,Ed}$ = 0,166 kN·m	---	---	---
220: CHSH 48.3x3.2	Acero Tub T01	$M_{z,Ed}$ = 0,029 kN·m	$M_{z,Rd}$ = 1,000 kN·m	2,9%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 25,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,7 kN	$V_{z,Rd}$ = 8,0 kN	9,2%	Sim
		N_{Ed} = 3,2 kN	N_{Rd} = 30,0 kN	10,6%	Sim
		$M_{x,Ed}$ = 0,032 kN·m	---	---	---
		$M_{y,Ed}$ = 0,446 kN·m	---	---	---
Diagonais					
97: CHSH 48.3x2,3	Acero D01	$N_{c,Ed}$ = 11,4 kN	$N_{c,Rd}$ = 15,0 kN	75,8%	Sim
		$N_{t,Ed}$ = 11,0 kN	$N_{t,Rd}$ = 17,0 kN	64,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,007 kN·m	---	---	---
		$M_{y,Ed}$ = 0,019 kN·m	---	---	---
		$M_{z,Ed}$ = 0,128 kN·m	---	---	---

Nó 92 [+109; +1000; +2122] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
158: CHSH 48.3x3.2 223: CHSH 48.3x3.2	Acero R01	$\Sigma V_{y,Ed}$ = 4,5 kN	$\Sigma V_{v,Rd}$ = 100,0 kN	4,5%	Sim
Travessas / longarinas					
216: CHSH 48.3x3.2	Acero Tub T01	$M_{z,Ed}$ = 0,029 kN·m	$M_{z,Rd}$ = 1,000 kN·m	2,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 25,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 8,0 kN	1,9%	Sim
		N_{Ed} = 5,7 kN	N_{Rd} = 30,0 kN	18,9%	Sim
		$M_{x,Ed}$ = 0,006 kN·m	---	---	---
		$M_{y,Ed}$ = 0,250 kN·m	---	---	---
219: CHSH 48.3x3.2	Acero Tub T01	$M_{z,Ed}$ = 0,282 kN·m	$M_{z,Rd}$ = 1,000 kN·m	28,2%	Sim
		$V_{y,Ed}$ = 0,8 kN	$V_{y,Rd}$ = 25,0 kN	3,2%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 8,0 kN	3,7%	Sim
		N_{Ed} = 2,9 kN	N_{Rd} = 30,0 kN	9,5%	Sim
		$M_{x,Ed}$ = 0,014 kN·m	---	---	---
		$M_{y,Ed}$ = 0,154 kN·m	---	---	---
222: CHSH 48.3x3.2	Acero Tub T01	$M_{z,Ed}$ = 0,005 kN·m	$M_{z,Rd}$ = 1,000 kN·m	0,5%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 25,0 kN	0,1%	Sim
		$V_{z,Ed}$ = 0,9 kN	$V_{z,Rd}$ = 8,0 kN	11,6%	Sim
		N_{Ed} = 0,7 kN	N_{Rd} = 30,0 kN	2,4%	Sim
		$M_{x,Ed}$ = 0,065 kN·m	---	---	---
		$M_{y,Ed}$ = 0,486 kN·m	---	---	---
Diagonais					
224: CHSH 48.3x2,3	Acero D01	$N_{c,Ed}$ = 7,2 kN	$N_{c,Rd}$ = 8,3 kN	86,6%	Sim
		$N_{t,Ed}$ = 0,0 kN	$N_{t,Rd}$ = 17,0 kN	0,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	---	---	---
		$V_{z,Ed}$ = 0,1 kN	---	---	---
		$M_{x,Ed}$ = 0,007 kN·m	---	---	---
		$M_{y,Ed}$ = 0,124 kN·m	---	---	---
		$M_{z,Ed}$ = 0,046 kN·m	---	---	---
225: CHSH 48.3x2,3	Acero D01	$N_{c,Ed}$ = 1,0 kN	$N_{c,Rd}$ = 15,0 kN	7,0%	Sim
		$N_{t,Ed}$ = 1,6 kN	$N_{t,Rd}$ = 17,0 kN	9,5%	Sim
		$V_{y,Ed}$ = 0,0 kN	---	---	---
		$V_{z,Ed}$ = 0,1 kN	---	---	---
		$M_{x,Ed}$ = 0,030 kN·m	---	---	---
		$M_{y,Ed}$ = 0,117 kN·m	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$M_{z,Ed}$ = 0,013 kN·m	---	---	---

Nó 93 [+0; +1000; +2231] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
160: CHSH 48.3x3.2 228: CHSH 48.3x3.2	Acero R01	$\Sigma V_{y,Ed}$ = 6,9 kN	$\Sigma V_{y,Rd}$ = 100,0 kN	6,9%	Sim
Travessas / longarinas					
220: CHSH 48.3x3.2	Acero Tub T01	$M_{z,Ed}$ = 0,031 kN·m	$M_{z,Rd}$ = 1,000 kN·m	3,1%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 25,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,7 kN	$V_{z,Rd}$ = 8,0 kN	9,2%	Sim
		N_{Ed} = 3,2 kN	N_{Rd} = 30,0 kN	10,6%	Sim
		$M_{x,Ed}$ = 0,032 kN·m	---	---	---
		$M_{y,Ed}$ = 0,356 kN·m	---	---	---
226: CHSH 48.3x3.2	Acero Tub T01	$M_{z,Ed}$ = 0,204 kN·m	$M_{z,Rd}$ = 1,000 kN·m	20,4%	Sim
		$V_{y,Ed}$ = 0,6 kN	$V_{y,Rd}$ = 25,0 kN	2,6%	Sim
		$V_{z,Ed}$ = 0,9 kN	$V_{z,Rd}$ = 8,0 kN	10,9%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 30,0 kN	1,1%	Sim
		$M_{x,Ed}$ = 0,010 kN·m	---	---	---
		$M_{y,Ed}$ = 0,463 kN·m	---	---	---
227: CHSH 48.3x3.2	Acero Tub T01	$M_{z,Ed}$ = 0,013 kN·m	$M_{z,Rd}$ = 1,000 kN·m	1,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 25,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 8,0 kN	1,7%	Sim
		N_{Ed} = 2,2 kN	N_{Rd} = 30,0 kN	7,4%	Sim
		$M_{x,Ed}$ = 0,030 kN·m	---	---	---
		$M_{y,Ed}$ = 0,100 kN·m	---	---	---
Diagonais					
93: CHSH 48.3x2,3	Acero D01	$N_{c,Ed}$ = 7,9 kN	$N_{c,Rd}$ = 15,0 kN	52,9%	Sim
		$N_{t,Ed}$ = 2,7 kN	$N_{t,Rd}$ = 17,0 kN	16,1%	Sim
		$V_{y,Ed}$ = 0,0 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,015 kN·m	---	---	---
		$M_{y,Ed}$ = 0,071 kN·m	---	---	---
		$M_{z,Ed}$ = 0,033 kN·m	---	---	---

Nó 94 [+109; +1000; +2231] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
162: CHSH 48.3x3.2 230: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 1,9 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	2,9%	Sim
Travessas / longarinas					
222: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,011 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,9%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,5 kN	$V_{z,Rd}$ = 5,0 kN	9,7%	Sim
		N_{Ed} = 0,7 kN	N_{Rd} = 20,0 kN	3,6%	Sim
		$M_{x,Ed}$ = 0,065 kN·m	---	---	---
		$M_{y,Ed}$ = 0,284 kN·m	---	---	---
226: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,208 kN·m	$M_{z,Rd}$ = 0,600 kN·m	34,6%	Sim
		$V_{y,Ed}$ = 0,6 kN	$V_{y,Rd}$ = 15,0 kN	4,3%	Sim
		$V_{z,Ed}$ = 0,9 kN	$V_{z,Rd}$ = 5,0 kN	17,4%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,7%	Sim
		$M_{x,Ed}$ = 0,010 kN·m	---	---	---
		$M_{y,Ed}$ = 0,483 kN·m	---	---	---
229: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,008 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,5 kN	$V_{z,Rd}$ = 5,0 kN	10,7%	Sim
		N_{Ed} = 2,1 kN	N_{Rd} = 20,0 kN	10,3%	Sim
		$M_{x,Ed}$ = 0,035 kN·m	---	---	---
		$M_{y,Ed}$ = 0,222 kN·m	---	---	---
Diagonais					
98: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 1,9 kN	$N_{c,Rd}$ = 7,0 kN	26,7%	Sim
		$N_{t,Ed}$ = 1,4 kN	$N_{t,Rd}$ = 7,0 kN	19,8%	Sim
		$V_{y,Ed}$ = 0,0 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,016 kN·m	---	---	---
		$M_{y,Ed}$ = 0,078 kN·m	---	---	---
		$M_{z,Ed}$ = 0,005 kN·m	---	---	---

Nó 95 [+0; +1000; +2438] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
164: CHSH 48.3x3.2 233: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,7 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	1,1%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Travessas / longarinas					
227: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,023 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,7%	Sim
		N_{Ed} = 2,2 kN	N_{Rd} = 20,0 kN	11,1%	Sim
		$M_{x,Ed}$ = 0,030 kN·m	---	---	---
		$M_{y,Ed}$ = 0,181 kN·m	---	---	---
231: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,136 kN·m	$M_{z,Rd}$ = 0,600 kN·m	22,7%	Sim
		$V_{y,Ed}$ = 0,6 kN	$V_{y,Rd}$ = 15,0 kN	3,9%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,9%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,2%	Sim
		$M_{x,Ed}$ = 0,011 kN·m	---	---	---
		$M_{y,Ed}$ = 0,134 kN·m	---	---	---
232: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,011 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	3,3%	Sim
		N_{Ed} = 1,8 kN	N_{Rd} = 20,0 kN	8,8%	Sim
		$M_{x,Ed}$ = 0,036 kN·m	---	---	---
		$M_{y,Ed}$ = 0,201 kN·m	---	---	---

Nó 96 [+109; +1000; +2438] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
166: CHSH 48.3x3.2 235: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,7 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	1,1%	Sim
Travessas / longarinas					
229: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,011 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 5,0 kN	6,9%	Sim
		N_{Ed} = 2,1 kN	N_{Rd} = 20,0 kN	10,3%	Sim
		$M_{x,Ed}$ = 0,035 kN·m	---	---	---
		$M_{y,Ed}$ = 0,028 kN·m	---	---	---
231: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,138 kN·m	$M_{z,Rd}$ = 0,600 kN·m	22,9%	Sim
		$V_{y,Ed}$ = 0,6 kN	$V_{y,Rd}$ = 15,0 kN	3,9%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,9%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,2%	Sim
		$M_{x,Ed}$ = 0,011 kN·m	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$M_{y,Ed}$ = 0,133 kN·m	---	---	---
234: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,008 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 5,0 kN	6,2%	Sim
		N_{Ed} = 1,7 kN	N_{Rd} = 20,0 kN	8,4%	Sim
		$M_{x,Ed}$ = 0,038 kN·m	---	---	---
		$M_{y,Ed}$ = 0,046 kN·m	---	---	---

Nó 97 [+0; +1000; +2645] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
168: CHSH 48.3x3.2 238: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,4 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,6%	Sim
Travessas / longarinas					
232: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,023 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	3,3%	Sim
		N_{Ed} = 1,8 kN	N_{Rd} = 20,0 kN	8,8%	Sim
		$M_{x,Ed}$ = 0,036 kN·m	---	---	---
		$M_{y,Ed}$ = 0,145 kN·m	---	---	---
236: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,052 kN·m	$M_{z,Rd}$ = 0,600 kN·m	8,6%	Sim
		$V_{y,Ed}$ = 0,4 kN	$V_{y,Rd}$ = 15,0 kN	2,4%	Sim
		$V_{z,Ed}$ = 0,9 kN	$V_{z,Rd}$ = 5,0 kN	17,4%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,1%	Sim
		$M_{x,Ed}$ = 0,010 kN·m	---	---	---
		$M_{y,Ed}$ = 0,464 kN·m	---	---	---
237: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,016 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,7%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	8,8%	Sim
		N_{Ed} = 0,7 kN	N_{Rd} = 20,0 kN	3,4%	Sim
		$M_{x,Ed}$ = 0,017 kN·m	---	---	---
		$M_{y,Ed}$ = 0,207 kN·m	---	---	---

Nó 98 [+109; +1000; +2645] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
170: CHSH 48.3x3.2 241: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 3,0 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	4,6%	Sim
Travessas / longarinas					
234: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,012 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,6 kN	$V_{z,Rd}$ = 5,0 kN	11,4%	Sim
		N_{Ed} = 1,7 kN	N_{Rd} = 20,0 kN	8,4%	Sim
		$M_{x,Ed}$ = 0,038 kN·m	---	---	---
		$M_{y,Ed}$ = 0,266 kN·m	---	---	---
236: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,050 kN·m	$M_{z,Rd}$ = 0,600 kN·m	8,3%	Sim
		$V_{y,Ed}$ = 0,4 kN	$V_{y,Rd}$ = 15,0 kN	2,4%	Sim
		$V_{z,Ed}$ = 0,9 kN	$V_{z,Rd}$ = 5,0 kN	17,4%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,1%	Sim
		$M_{x,Ed}$ = 0,010 kN·m	---	---	---
		$M_{y,Ed}$ = 0,486 kN·m	---	---	---
239: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,044 kN·m	$M_{z,Rd}$ = 0,600 kN·m	7,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,3%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,3%	Sim
		$M_{x,Ed}$ = 0,010 kN·m	---	---	---
		$M_{y,Ed}$ = 0,031 kN·m	---	---	---
240: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,006 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,0%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,7%	Sim
		N_{Ed} = 0,7 kN	N_{Rd} = 20,0 kN	3,4%	Sim
		$M_{x,Ed}$ = 0,017 kN·m	---	---	---
		$M_{y,Ed}$ = 0,096 kN·m	---	---	---
Diagonais					
242: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 3,0 kN	$N_{c,Rd}$ = 7,0 kN	42,2%	Sim
		$N_{t,Ed}$ = 1,7 kN	$N_{t,Rd}$ = 7,0 kN	24,0%	Sim
		$V_{y,Ed}$ = 0,0 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,002 kN·m	---	---	---
		$M_{y,Ed}$ = 0,015 kN·m	---	---	---
		$M_{z,Ed}$ = 0,008 kN·m	---	---	---

Nó 99 [+416; +1000; +2645] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
118: CHSH 48.3x3.2 244: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 1,0 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	1,5%	Sim
Travessas / longarinas					
239: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,045 kN·m	$M_{z,Rd}$ = 0,600 kN·m	7,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,3%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,3%	Sim
		$M_{x,Ed}$ = 0,010 kN·m	---	---	---
		$M_{v,Ed}$ = 0,020 kN·m	---	---	---
243: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,031 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,1%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,5%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,4%	Sim
		$M_{x,Ed}$ = 0,020 kN·m	---	---	---
		$M_{y,Ed}$ = 0,023 kN·m	---	---	---
Diagonais					
245: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 0,9 kN	$N_{c,Rd}$ = 7,0 kN	13,4%	Sim
		$N_{t,Ed}$ = 0,7 kN	$N_{t,Rd}$ = 7,0 kN	10,4%	Sim
		$V_{y,Ed}$ = 0,0 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,008 kN·m	---	---	---
		$M_{v,Ed}$ = 0,010 kN·m	---	---	---
		$M_{z,Ed}$ = 0,040 kN·m	---	---	---

Nó 100 [+0; +1000; +2754] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
172: CHSH 48.3x3.2 247: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,3%	Sim
Travessas / longarinas					
237: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,020 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	8,8%	Sim
		N_{Ed} = 0,7 kN	N_{Rd} = 20,0 kN	3,4%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$M_{x,Ed}$ = 0,017 kN·m	---	---	---
		$M_{y,Ed}$ = 0,274 kN·m	---	---	---
246: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,019 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	1,0%	Sim
		$V_{z,Ed}$ = 0,5 kN	$V_{z,Rd}$ = 5,0 kN	10,4%	Sim
		N_{Ed} = 0,7 kN	N_{Rd} = 20,0 kN	3,4%	Sim
		$M_{x,Ed}$ = 0,012 kN·m	---	---	---
		$M_{y,Ed}$ = 0,269 kN·m	---	---	---

Nó 101 [+109; +1000; +2754] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
173: CHSH 48.3x3.2 249: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,7 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	1,1%	Sim
Travessas / longarinas					
240: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,009 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,5%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,5 kN	$V_{z,Rd}$ = 5,0 kN	10,5%	Sim
		N_{Ed} = 0,7 kN	N_{Rd} = 20,0 kN	3,4%	Sim
		$M_{x,Ed}$ = 0,017 kN·m	---	---	---
		$M_{y,Ed}$ = 0,237 kN·m	---	---	---
246: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,023 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,9%	Sim
		$V_{y,Ed}$ = 0,2 kN	$V_{y,Rd}$ = 15,0 kN	1,0%	Sim
		$V_{z,Ed}$ = 0,5 kN	$V_{z,Rd}$ = 5,0 kN	10,4%	Sim
		N_{Ed} = 0,7 kN	N_{Rd} = 20,0 kN	3,4%	Sim
		$M_{x,Ed}$ = 0,012 kN·m	---	---	---
		$M_{y,Ed}$ = 0,297 kN·m	---	---	---
248: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,027 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,8%	Sim
		N_{Ed} = 1,4 kN	N_{Rd} = 20,0 kN	6,8%	Sim
		$M_{x,Ed}$ = 0,013 kN·m	---	---	---
		$M_{y,Ed}$ = 0,078 kN·m	---	---	---
Diagonais					
115: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 2,8 kN	$N_{c,Rd}$ = 7,0 kN	40,0%	Sim
		$N_{t,Ed}$ = 1,3 kN	$N_{t,Rd}$ = 7,0 kN	18,9%	Sim
		$V_{y,Ed}$ = 0,0 kN	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,003 kN·m	---	---	---
		$M_{y,Ed}$ = 0,004 kN·m	---	---	---
		$M_{z,Ed}$ = 0,006 kN·m	---	---	---
125: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 3,2 kN	$N_{c,Rd}$ = 7,0 kN	45,9%	Sim
		$N_{t,Ed}$ = 3,2 kN	$N_{t,Rd}$ = 7,0 kN	45,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,010 kN·m	---	---	---
		$M_{y,Ed}$ = 0,012 kN·m	---	---	---
		$M_{z,Ed}$ = 0,025 kN·m	---	---	---

Nó 102 [+416; +1000; +2754] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
126: CHSH 48.3x3.2 251: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 1,2 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	1,9%	Sim
Travessas / longarinas					
243: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,042 kN·m	$M_{z,Rd}$ = 0,600 kN·m	7,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,5%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,4%	Sim
		$M_{x,Ed}$ = 0,020 kN·m	---	---	---
		$M_{y,Ed}$ = 0,011 kN·m	---	---	---
248: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,025 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,8%	Sim
		N_{Ed} = 1,4 kN	N_{Rd} = 20,0 kN	6,8%	Sim
		$M_{x,Ed}$ = 0,013 kN·m	---	---	---
		$M_{y,Ed}$ = 0,052 kN·m	---	---	---
Diagonais					
127: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 4,9 kN	$N_{c,Rd}$ = 7,0 kN	70,2%	Sim
		$N_{t,Ed}$ = 5,1 kN	$N_{t,Rd}$ = 7,0 kN	72,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,002 kN·m	---	---	---
		$M_{y,Ed}$ = 0,091 kN·m	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$M_{z,Ed}$ = 0,031 kN·m	---	---	---
250: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 6,6 kN	$N_{c,Rd}$ = 7,0 kN	94,8%	Sim
		$N_{t,Ed}$ = 6,3 kN	$N_{t,Rd}$ = 7,0 kN	90,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,007 kN·m	---	---	---
		$M_{y,Ed}$ = 0,034 kN·m	---	---	---
		$M_{z,Ed}$ = 0,025 kN·m	---	---	---

Nó 103 [+0; +1050; -36] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
176: CHSH 48.3x3.2 254: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,9 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	1,4%	Sim
Travessas / longarinas					
252: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,486 kN·m	$M_{z,Rd}$ = 0,600 kN·m	80,9%	Sim
		$V_{y,Ed}$ = 0,9 kN	$V_{y,Rd}$ = 15,0 kN	6,1%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,5%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,3%	Sim
		$M_{x,Ed}$ = 0,022 kN·m	---	---	---
		$M_{y,Ed}$ = 0,042 kN·m	---	---	---
253: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,030 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,1%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,2%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	1,0%	Sim
		$M_{x,Ed}$ = 0,047 kN·m	---	---	---
		$M_{y,Ed}$ = 0,033 kN·m	---	---	---

Nó 104 [+109; +1050; -36] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
178: CHSH 48.3x3.2 256: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,9 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	1,4%	Sim
Travessas / longarinas					
252: CHSH	Acero Tub T02	$M_{z,Ed}$ = 0,481 kN·m	$M_{z,Rd}$ = 0,600 kN·m	80,2%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
48.3x3.2		$V_{y,Ed}$ = 0,9 kN	$V_{y,Rd}$ = 15,0 kN	6,1%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,5%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,3%	Sim
		$M_{x,Ed}$ = 0,022 kN·m	---	---	---
		$M_{y,Ed}$ = 0,041 kN·m	---	---	---
255: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,006 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,1%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,4%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,5%	Sim
		$M_{x,Ed}$ = 0,049 kN·m	---	---	---
		$M_{y,Ed}$ = 0,023 kN·m	---	---	---

Nó 105 [+0; +1050; +73] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
182: CHSH 48.3x3.2 258: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
253: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,027 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,2%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	1,0%	Sim
		$M_{x,Ed}$ = 0,047 kN·m	---	---	---
		$M_{y,Ed}$ = 0,022 kN·m	---	---	---
257: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,038 kN·m	$M_{z,Rd}$ = 0,600 kN·m	6,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,2%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	1,8%	Sim
		$M_{x,Ed}$ = 0,045 kN·m	---	---	---
		$M_{y,Ed}$ = 0,013 kN·m	---	---	---

Nó 106 [+109; +1050; +73] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
184: CHSH 48.3x3.2 260: CHSH	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,1%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
48.3x3.2					
Travessas / longarinas					
255: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,003 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,5%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,4%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,5%	Sim
		$M_{x,Ed}$ = 0,049 kN·m	---	---	---
		$M_{y,Ed}$ = 0,041 kN·m	---	---	---
259: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,019 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,3%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,7%	Sim
		$M_{x,Ed}$ = 0,045 kN·m	---	---	---
		$M_{y,Ed}$ = 0,010 kN·m	---	---	---

Nó 107 [+0; +1050; +330] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
187: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,2%	Sim
262: CHSH 48.3x3.2					
Travessas / longarinas					
257: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,027 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,2%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	1,8%	Sim
		$M_{x,Ed}$ = 0,045 kN·m	---	---	---
		$M_{y,Ed}$ = 0,014 kN·m	---	---	---
261: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,045 kN·m	$M_{z,Rd}$ = 0,600 kN·m	7,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,0%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,7%	Sim
		$M_{x,Ed}$ = 0,007 kN·m	---	---	---
		$M_{y,Ed}$ = 0,016 kN·m	---	---	---

Nó 108 [+109; +1050; +330] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
189: CHSH 48.3x3.2 264: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
259: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,015 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,3%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,7%	Sim
		$M_{x,Ed}$ = 0,045 kN·m	---	---	---
		$M_{y,Ed}$ = 0,026 kN·m	---	---	---
263: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,026 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,2%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	1,0%	Sim
		$M_{x,Ed}$ = 0,006 kN·m	---	---	---
		$M_{y,Ed}$ = 0,004 kN·m	---	---	---

Nó 109 [+0; +1050; +637] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
192: CHSH 48.3x3.2 266: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
261: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,034 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,0%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,7%	Sim
		$M_{x,Ed}$ = 0,007 kN·m	---	---	---
		$M_{y,Ed}$ = 0,014 kN·m	---	---	---
265: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,038 kN·m	$M_{z,Rd}$ = 0,600 kN·m	6,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,2%	Sim
		N_{Ed} = 0,7 kN	N_{Rd} = 20,0 kN	3,7%	Sim
		$M_{x,Ed}$ = 0,083 kN·m	---	---	---
		$M_{y,Ed}$ = 0,008 kN·m	---	---	---

Nó 110 [+109; +1050; +637] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
194: CHSH 48.3x3.2 268: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
263: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,024 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,2%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	1,0%	Sim
		$M_{x,Ed}$ = 0,006 kN·m	---	---	---
		$M_{v,Ed}$ = 0,025 kN·m	---	---	---
267: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,019 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,1%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	1,2%	Sim
		$M_{x,Ed}$ = 0,083 kN·m	---	---	---
		$M_{y,Ed}$ = 0,012 kN·m	---	---	---

Nó 111 [+0; +1050; +894] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
198: CHSH 48.3x3.2 270: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
265: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,027 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,2%	Sim
		N_{Ed} = 0,7 kN	N_{Rd} = 20,0 kN	3,7%	Sim
		$M_{x,Ed}$ = 0,083 kN·m	---	---	---
		$M_{y,Ed}$ = 0,036 kN·m	---	---	---
269: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,044 kN·m	$M_{z,Rd}$ = 0,600 kN·m	7,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,2%	Sim
		N_{Ed} = 1,0 kN	N_{Rd} = 20,0 kN	5,1%	Sim
		$M_{x,Ed}$ = 0,098 kN·m	---	---	---
		$M_{y,Ed}$ = 0,041	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		kN·m			

Nó 112 [+109; +1050; +894] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
200: CHSH 48.3x3.2 272: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
267: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,016 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,1%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	1,2%	Sim
		$M_{x,Ed}$ = 0,083 kN·m	---	---	---
		$M_{y,Ed}$ = 0,030 kN·m	---	---	---
271: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,027 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,1%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	1,2%	Sim
		$M_{x,Ed}$ = 0,100 kN·m	---	---	---
		$M_{y,Ed}$ = 0,039 kN·m	---	---	---

Nó 113 [+0; +1050; +1201] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
203: CHSH 48.3x3.2 274: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,3%	Sim
Travessas / longarinas					
269: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,035 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,2%	Sim
		N_{Ed} = 1,0 kN	N_{Rd} = 20,0 kN	5,1%	Sim
		$M_{x,Ed}$ = 0,098 kN·m	---	---	---
		$M_{y,Ed}$ = 0,138 kN·m	---	---	---
273: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,068 kN·m	$M_{z,Rd}$ = 0,600 kN·m	11,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,7%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,1%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		N_{Ed} = 1,3 kN	N_{Rd} = 20,0 kN	6,7%	Sim
		$M_{x,Ed}$ = 0,053 kN·m	---	---	---
		$M_{y,Ed}$ = 0,187 kN·m	---	---	---

Nó 114 [+109; +1050; +1201] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
205: CHSH 48.3x3.2 276: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,3%	Sim
Travessas / longarinas					
271: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,025 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,1%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,1%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	1,2%	Sim
		$M_{x,Ed}$ = 0,100 kN·m	---	---	---
		$M_{y,Ed}$ = 0,129 kN·m	---	---	---
275: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,040 kN·m	$M_{z,Rd}$ = 0,600 kN·m	6,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,2%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,2%	Sim
		$M_{x,Ed}$ = 0,053 kN·m	---	---	---
		$M_{y,Ed}$ = 0,194 kN·m	---	---	---

Nó 115 [+0; +1050; +1508] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
210: CHSH 48.3x3.2 278: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
273: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,024 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,1%	Sim
		N_{Ed} = 1,3 kN	N_{Rd} = 20,0 kN	6,7%	Sim
		$M_{x,Ed}$ = 0,053 kN·m	---	---	---
		$M_{y,Ed}$ = 0,140 kN·m	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
277: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,028 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,2%	Sim
		N_{Ed} = 1,2 kN	N_{Rd} = 20,0 kN	5,8%	Sim
		$M_{x,Ed}$ = 0,060 kN·m	---	---	---
		$M_{y,Ed}$ = 0,068 kN·m	---	---	---

Nó 116 [+109; +1050; +1508] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
212: CHSH 48.3x3.2 280: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
275: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,017 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,2%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,2%	Sim
		$M_{x,Ed}$ = 0,053 kN·m	---	---	---
		$M_{y,Ed}$ = 0,142 kN·m	---	---	---
279: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,021 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,2%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,3%	Sim
		$M_{x,Ed}$ = 0,063 kN·m	---	---	---
		$M_{y,Ed}$ = 0,068 kN·m	---	---	---

Nó 117 [+0; +1050; +1815] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
215: CHSH 48.3x3.2 282: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
277: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,055 kN·m	$M_{z,Rd}$ = 0,600 kN·m	9,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,7%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,2%	Sim
		N_{Ed} = 1,2 kN	N_{Rd} = 20,0 kN	5,8%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$M_{x,Ed}$ = 0,060 kN·m	---	---	---
		$M_{y,Ed}$ = 0,083 kN·m	---	---	---
281: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,024 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,1%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,3%	Sim
		N_{Ed} = 0,8 kN	N_{Rd} = 20,0 kN	4,0%	Sim
		$M_{x,Ed}$ = 0,018 kN·m	---	---	---
		$M_{y,Ed}$ = 0,151 kN·m	---	---	---

Nó 118 [+109; +1050; +1815] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
217: CHSH 48.3x3.2 284: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
279: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,028 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,2%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,3%	Sim
		$M_{x,Ed}$ = 0,063 kN·m	---	---	---
		$M_{y,Ed}$ = 0,079 kN·m	---	---	---
283: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,019 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,1%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	2,9%	Sim
		$M_{x,Ed}$ = 0,019 kN·m	---	---	---
		$M_{y,Ed}$ = 0,142 kN·m	---	---	---

Nó 119 [+0; +1050; +2122] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
221: CHSH 48.3x3.2 286: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
281: CHSH	Acero Tub T02	$M_{z,Ed}$ = 0,053	$M_{z,Rd}$ = 0,600	8,8%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
48.3x3.2		kN·m	kN·m		
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,7%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,3%	Sim
		N_{Ed} = 0,8 kN	N_{Rd} = 20,0 kN	4,0%	Sim
		$M_{x,Ed}$ = 0,018 kN·m	---	---	---
		$M_{y,Ed}$ = 0,198 kN·m	---	---	---
285: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,041 kN·m	$M_{z,Rd}$ = 0,600 kN·m	6,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 5,0 kN	5,7%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	3,2%	Sim
		$M_{x,Ed}$ = 0,103 kN·m	---	---	---
		$M_{y,Ed}$ = 0,226 kN·m	---	---	---

Nó 120 [+109; +1050; +2122] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
223: CHSH 48.3x3.2 288: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
283: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,027 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,1%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	2,9%	Sim
		$M_{x,Ed}$ = 0,019 kN·m	---	---	---
		$M_{y,Ed}$ = 0,179 kN·m	---	---	---
287: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,002 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,3%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,9%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	3,0%	Sim
		$M_{x,Ed}$ = 0,108 kN·m	---	---	---
		$M_{y,Ed}$ = 0,206 kN·m	---	---	---

Nó 121 [+0; +1050; +2231] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
228: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
290: CHSH 48.3x3.2					
Travessas / longarinas					
285: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,045 kN·m	$M_{z,Rd}$ = 0,600 kN·m	7,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,7%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 5,0 kN	5,7%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	3,2%	Sim
		$M_{x,Ed}$ = 0,103 kN·m	---	---	---
		$M_{y,Ed}$ = 0,094 kN·m	---	---	---
289: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,025 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,1%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,4%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	2,9%	Sim
		$M_{x,Ed}$ = 0,082 kN·m	---	---	---
		$M_{y,Ed}$ = 0,014 kN·m	---	---	---

Nó 122 [+109; +1050; +2231] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
230: CHSH 48.3x3.2 292: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,1%	Sim
Travessas / longarinas					
287: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,006 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,9%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,9%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	3,0%	Sim
		$M_{x,Ed}$ = 0,108 kN·m	---	---	---
		$M_{y,Ed}$ = 0,066 kN·m	---	---	---
291: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,013 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,4%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	2,8%	Sim
		$M_{x,Ed}$ = 0,085 kN·m	---	---	---
		$M_{y,Ed}$ = 0,017 kN·m	---	---	---

Nó 123 [+0; +1050; +2438] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
233: CHSH 48.3x3.2 294: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
289: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,032 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,4%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	2,9%	Sim
		$M_{x,Ed}$ = 0,082 kN·m	---	---	---
		$M_{y,Ed}$ = 0,135 kN·m	---	---	---
293: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,022 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,8%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,6%	Sim
		$M_{x,Ed}$ = 0,058 kN·m	---	---	---
		$M_{y,Ed}$ = 0,128 kN·m	---	---	---

Nó 124 [+109; +1050; +2438] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
235: CHSH 48.3x3.2 296: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
291: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,009 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,4%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	2,8%	Sim
		$M_{x,Ed}$ = 0,085 kN·m	---	---	---
		$M_{y,Ed}$ = 0,133 kN·m	---	---	---
295: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,013 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,7%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,6%	Sim
		$M_{x,Ed}$ = 0,057 kN·m	---	---	---
		$M_{y,Ed}$ = 0,127 kN·m	---	---	---

Nó 125 [+0; +1050; +2645] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
238: CHSH 48.3x3.2 298: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,1%	Sim
Travessas / longarinas					
293: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,032 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,8%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,6%	Sim
		$M_{x,Ed}$ = 0,058 kN·m	---	---	---
		$M_{v,Ed}$ = 0,054 kN·m	---	---	---
297: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,027 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	3,5%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,2%	Sim
		$M_{x,Ed}$ = 0,021 kN·m	---	---	---
		$M_{y,Ed}$ = 0,010 kN·m	---	---	---

Nó 126 [+109; +1050; +2645] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
241: CHSH 48.3x3.2 300: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,1%	Sim
Travessas / longarinas					
295: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,008 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,7%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,6%	Sim
		$M_{x,Ed}$ = 0,057 kN·m	---	---	---
		$M_{y,Ed}$ = 0,052 kN·m	---	---	---
299: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,002 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,4%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	3,0%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,2%	Sim
		$M_{x,Ed}$ = 0,021 kN·m	---	---	---
		$M_{y,Ed}$ = 0,007	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		kN·m			

Nó 127 [+0; +1050; +2754] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
247: CHSH 48.3x3.2 302: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
297: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,030 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	3,5%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,2%	Sim
		$M_{x,Ed}$ = 0,021 kN·m	---	---	---
		$M_{y,Ed}$ = 0,185 kN·m	---	---	---
301: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,024 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	7,5%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,3%	Sim
		$M_{x,Ed}$ = 0,023 kN·m	---	---	---
		$M_{y,Ed}$ = 0,202 kN·m	---	---	---

Nó 128 [+109; +1050; +2754] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
249: CHSH 48.3x3.2 303: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,1%	Sim
Travessas / longarinas					
299: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,004 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,6%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	3,0%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,2%	Sim
		$M_{x,Ed}$ = 0,021 kN·m	---	---	---
		$M_{y,Ed}$ = 0,173 kN·m	---	---	---
301: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,023 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	7,5%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,3%	Sim
		$M_{x,Ed}$ = 0,023 kN·m	---	---	---
		$M_{y,Ed}$ = 0,207 kN·m	---	---	---

Nó 129 [+0; +1100; -36] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
254: CHSH 48.3x3.2 306: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 1,0 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	1,5%	Sim
Travessas / longarinas					
304: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,524 kN·m	$M_{z,Rd}$ = 0,600 kN·m	87,4%	Sim
		$V_{y,Ed}$ = 1,0 kN	$V_{y,Rd}$ = 15,0 kN	6,6%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,2%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,1%	Sim
		$M_{x,Ed}$ = 0,017 kN·m	---	---	---
		$M_{y,Ed}$ = 0,115 kN·m	---	---	---
305: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,026 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,7%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,3%	Sim
		$M_{x,Ed}$ = 0,055 kN·m	---	---	---
		$M_{y,Ed}$ = 0,124 kN·m	---	---	---

Nó 130 [+109; +1100; -36] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
256: CHSH 48.3x3.2 308: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 1,0 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	1,6%	Sim
Travessas / longarinas					
304: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,522 kN·m	$M_{z,Rd}$ = 0,600 kN·m	87,0%	Sim
		$V_{y,Ed}$ = 1,0 kN	$V_{y,Rd}$ = 15,0 kN	6,5%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,2%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,1%	Sim
		$M_{x,Ed}$ = 0,017 kN·m	---	---	---
		$M_{y,Ed}$ = 0,114 kN·m	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
307: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,004 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,7%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,4%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,4%	Sim
		$M_{x,Ed}$ = 0,050 kN·m	---	---	---
		$M_{y,Ed}$ = 0,118 kN·m	---	---	---

Nó 131 [+0; +1100; +73] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
258: CHSH 48.3x3.2 310: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
305: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,023 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,7%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,3%	Sim
		$M_{x,Ed}$ = 0,055 kN·m	---	---	---
		$M_{y,Ed}$ = 0,024 kN·m	---	---	---
309: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,034 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,7%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,5%	Sim
		$M_{x,Ed}$ = 0,050 kN·m	---	---	---
		$M_{y,Ed}$ = 0,037 kN·m	---	---	---

Nó 132 [+109; +1100; +73] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
260: CHSH 48.3x3.2 312: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
307: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,003 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,5%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,4%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,4%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$M_{x,Ed}$ = 0,050 kN·m	---	---	---
		$M_{y,Ed}$ = 0,011 kN·m	---	---	---
311: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,017 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,6%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,7%	Sim
		$M_{x,Ed}$ = 0,049 kN·m	---	---	---
		$M_{y,Ed}$ = 0,032 kN·m	---	---	---

Nó 133 [+0; +1100; +330] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
262: CHSH 48.3x3.2 314: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
309: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,032 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,7%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,5%	Sim
		$M_{x,Ed}$ = 0,050 kN·m	---	---	---
		$M_{y,Ed}$ = 0,051 kN·m	---	---	---
313: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,041 kN·m	$M_{z,Rd}$ = 0,600 kN·m	6,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,1%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,7%	Sim
		$M_{x,Ed}$ = 0,008 kN·m	---	---	---
		$M_{y,Ed}$ = 0,021 kN·m	---	---	---

Nó 134 [+109; +1100; +330] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
264: CHSH 48.3x3.2 316: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
311: CHSH	Acero Tub T02	$M_{z,Ed}$ = 0,013	$M_{z,Rd}$ = 0,600	2,2%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
48.3x3.2		kN·m	kN·m		
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,6%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,7%	Sim
		$M_{x,Ed}$ = 0,049 kN·m	---	---	---
		$M_{y,Ed}$ = 0,051 kN·m	---	---	---
315: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,024 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,2%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	1,9%	Sim
		$M_{x,Ed}$ = 0,007 kN·m	---	---	---
		$M_{y,Ed}$ = 0,012 kN·m	---	---	---

Nó 135 [+0; +1100; +637] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
266: CHSH 48.3x3.2 318: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
313: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,040 kN·m	$M_{z,Rd}$ = 0,600 kN·m	6,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,1%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,7%	Sim
		$M_{x,Ed}$ = 0,008 kN·m	---	---	---
		$M_{y,Ed}$ = 0,033 kN·m	---	---	---
317: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,035 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,2%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,0%	Sim
		$M_{x,Ed}$ = 0,088 kN·m	---	---	---
		$M_{y,Ed}$ = 0,051 kN·m	---	---	---

Nó 136 [+109; +1100; +637] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
268: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
320: CHSH 48.3x3.2					
Travessas / longarinas					
315: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,021 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,2%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	1,9%	Sim
		$M_{x,Ed}$ = 0,007 kN·m	---	---	---
		$M_{y,Ed}$ = 0,042 kN·m	---	---	---
319: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,018 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,3%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,1%	Sim
		$M_{x,Ed}$ = 0,088 kN·m	---	---	---
		$M_{y,Ed}$ = 0,052 kN·m	---	---	---

Nó 137 [+0; +1100; +894] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
270: CHSH 48.3x3.2 322: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
317: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,034 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,2%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,0%	Sim
		$M_{x,Ed}$ = 0,088 kN·m	---	---	---
		$M_{y,Ed}$ = 0,022 kN·m	---	---	---
321: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,040 kN·m	$M_{z,Rd}$ = 0,600 kN·m	6,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,1%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,3%	Sim
		$M_{x,Ed}$ = 0,122 kN·m	---	---	---
		$M_{y,Ed}$ = 0,094 kN·m	---	---	---

Nó 138 [+109; +1100; +894] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
272: CHSH 48.3x3.2 324: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
319: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,013 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,3%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,1%	Sim
		$M_{x,Ed}$ = 0,088 kN·m	---	---	---
		$M_{y,Ed}$ = 0,016 kN·m	---	---	---
323: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,025 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,0%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,0%	Sim
		$M_{x,Ed}$ = 0,122 kN·m	---	---	---
		$M_{y,Ed}$ = 0,097 kN·m	---	---	---

Nó 139 [+0; +1100; +1201] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
274: CHSH 48.3x3.2 326: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,3%	Sim
Travessas / longarinas					
321: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,042 kN·m	$M_{z,Rd}$ = 0,600 kN·m	7,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,1%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,3%	Sim
		$M_{x,Ed}$ = 0,122 kN·m	---	---	---
		$M_{y,Ed}$ = 0,223 kN·m	---	---	---
325: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,066 kN·m	$M_{z,Rd}$ = 0,600 kN·m	11,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,7%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,7%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	2,9%	Sim
		$M_{x,Ed}$ = 0,074 kN·m	---	---	---
		$M_{y,Ed}$ = 0,253 kN·m	---	---	---

Nó 140 [+109; +1100; +1201] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
276: CHSH 48.3x3.2 328: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,3%	Sim
Travessas / longarinas					
323: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,021 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,0%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,0%	Sim
		$M_{x,Ed}$ = 0,122 kN·m	---	---	---
		$M_{v,Ed}$ = 0,216 kN·m	---	---	---
327: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,041 kN·m	$M_{z,Rd}$ = 0,600 kN·m	6,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,8%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	1,9%	Sim
		$M_{x,Ed}$ = 0,074 kN·m	---	---	---
		$M_{y,Ed}$ = 0,259 kN·m	---	---	---

Nó 141 [+0; +1100; +1508] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
278: CHSH 48.3x3.2 330: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
325: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,026 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,7%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	2,9%	Sim
		$M_{x,Ed}$ = 0,074 kN·m	---	---	---
		$M_{y,Ed}$ = 0,169 kN·m	---	---	---
329: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,033 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,5%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,6%	Sim
		$M_{x,Ed}$ = 0,073 kN·m	---	---	---
		$M_{y,Ed}$ = 0,052	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		kN·m			

Nó 142 [+109; +1100; +1508] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
280: CHSH 48.3x3.2 332: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
327: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,012 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,1%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,8%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	1,9%	Sim
		$M_{x,Ed}$ = 0,074 kN·m	---	---	---
		$M_{y,Ed}$ = 0,170 kN·m	---	---	---
331: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,023 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,4%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,0%	Sim
		$M_{x,Ed}$ = 0,073 kN·m	---	---	---
		$M_{y,Ed}$ = 0,051 kN·m	---	---	---

Nó 143 [+0; +1100; +1815] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
282: CHSH 48.3x3.2 334: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
329: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,051 kN·m	$M_{z,Rd}$ = 0,600 kN·m	8,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,7%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,5%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,6%	Sim
		$M_{x,Ed}$ = 0,073 kN·m	---	---	---
		$M_{y,Ed}$ = 0,113 kN·m	---	---	---
333: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,033 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,7%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,3%	Sim
		$M_{x,Ed}$ = 0,021 kN·m	---	---	---
		$M_{y,Ed}$ = 0,120 kN·m	---	---	---

Nó 144 [+109; +1100; +1815] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
284: CHSH 48.3x3.2 336: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
331: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,022 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,4%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,0%	Sim
		$M_{x,Ed}$ = 0,073 kN·m	---	---	---
		$M_{y,Ed}$ = 0,108 kN·m	---	---	---
335: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,022 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,4%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,1%	Sim
		$M_{x,Ed}$ = 0,019 kN·m	---	---	---
		$M_{y,Ed}$ = 0,111 kN·m	---	---	---

Nó 145 [+0; +1100; +2122] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
286: CHSH 48.3x3.2 338: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
333: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,050 kN·m	$M_{z,Rd}$ = 0,600 kN·m	8,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,7%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,7%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,3%	Sim
		$M_{x,Ed}$ = 0,021 kN·m	---	---	---
		$M_{y,Ed}$ = 0,134 kN·m	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
337: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,038 kN·m	$M_{z,Rd}$ = 0,600 kN·m	6,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,1%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,3%	Sim
		$M_{x,Ed}$ = 0,098 kN·m	---	---	---
		$M_{y,Ed}$ = 0,105 kN·m	---	---	---

Nó 146 [+109; +1100; +2122] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
288: CHSH 48.3x3.2 340: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
335: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,026 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,4%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,1%	Sim
		$M_{x,Ed}$ = 0,019 kN·m	---	---	---
		$M_{y,Ed}$ = 0,110 kN·m	---	---	---
339: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,002 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,4%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,5%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,1%	Sim
		$M_{x,Ed}$ = 0,096 kN·m	---	---	---
		$M_{y,Ed}$ = 0,095 kN·m	---	---	---

Nó 147 [+0; +1100; +2231] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
290: CHSH 48.3x3.2 342: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
337: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,042 kN·m	$M_{z,Rd}$ = 0,600 kN·m	7,1%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,7%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,1%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,3%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$M_{x,Ed}$ = 0,098 kN·m	---	---	---
		$M_{y,Ed}$ = 0,013 kN·m	---	---	---
341: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,034 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,9%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,0%	Sim
		$M_{x,Ed}$ = 0,105 kN·m	---	---	---
		$M_{y,Ed}$ = 0,021 kN·m	---	---	---

Nó 148 [+109; +1100; +2231] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
292: CHSH 48.3x3.2 344: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,1%	Sim
Travessas / longarinas					
339: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,006 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,0%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,5%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,1%	Sim
		$M_{x,Ed}$ = 0,096 kN·m	---	---	---
		$M_{y,Ed}$ = 0,023 kN·m	---	---	---
343: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,014 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,9%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,0%	Sim
		$M_{x,Ed}$ = 0,104 kN·m	---	---	---
		$M_{y,Ed}$ = 0,018 kN·m	---	---	---

Nó 149 [+0; +1100; +2438] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
294: CHSH 48.3x3.2 346: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
341: CHSH	Acero Tub T02	$M_{z,Ed}$ = 0,033	$M_{z,Rd}$ = 0,600	5,4%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
48.3x3.2		kN·m	kN·m		
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,9%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,0%	Sim
		$M_{x,Ed}$ = 0,105 kN·m	---	---	---
		$M_{y,Ed}$ = 0,098 kN·m	---	---	---
345: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,031 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,0%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,0%	Sim
		$M_{x,Ed}$ = 0,073 kN·m	---	---	---
		$M_{y,Ed}$ = 0,132 kN·m	---	---	---

Nó 150 [+109; +1100; +2438] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
296: CHSH 48.3x3.2 348: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
343: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,010 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,9%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,0%	Sim
		$M_{x,Ed}$ = 0,104 kN·m	---	---	---
		$M_{y,Ed}$ = 0,096 kN·m	---	---	---
347: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,015 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,9%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	1,8%	Sim
		$M_{x,Ed}$ = 0,073 kN·m	---	---	---
		$M_{y,Ed}$ = 0,129 kN·m	---	---	---

Nó 151 [+0; +1100; +2645] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
298: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
350: CHSH 48.3x3.2					
Travessas / longarinas					
345: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,034 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,0%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,0%	Sim
		$M_{x,Ed}$ = 0,073 kN·m	---	---	---
		$M_{y,Ed}$ = 0,074 kN·m	---	---	---
349: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,029 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,8%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	1,8%	Sim
		$M_{x,Ed}$ = 0,039 kN·m	---	---	---
		$M_{y,Ed}$ = 0,028 kN·m	---	---	---

Nó 152 [+109; +1100; +2645] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
300: CHSH 48.3x3.2 352: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,1%	Sim
Travessas / longarinas					
347: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,010 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,9%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	1,8%	Sim
		$M_{x,Ed}$ = 0,073 kN·m	---	---	---
		$M_{y,Ed}$ = 0,072 kN·m	---	---	---
351: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,003 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,6%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,8%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,7%	Sim
		$M_{x,Ed}$ = 0,040 kN·m	---	---	---
		$M_{y,Ed}$ = 0,027 kN·m	---	---	---

Nó 153 [+0; +1100; +2754] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
302: CHSH 48.3x3.2 354: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
349: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,033 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,8%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	1,8%	Sim
		$M_{x,Ed}$ = 0,039 kN·m	---	---	---
		$M_{y,Ed}$ = 0,177 kN·m	---	---	---
353: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,013 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 5,0 kN	7,0%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,1%	Sim
		$M_{x,Ed}$ = 0,027 kN·m	---	---	---
		$M_{y,Ed}$ = 0,189 kN·m	---	---	---

Nó 154 [+109; +1100; +2754] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
303: CHSH 48.3x3.2 355: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,1%	Sim
Travessas / longarinas					
351: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,003 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,4%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,8%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,7%	Sim
		$M_{x,Ed}$ = 0,040 kN·m	---	---	---
		$M_{y,Ed}$ = 0,176 kN·m	---	---	---
353: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,010 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,7%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 5,0 kN	7,0%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,1%	Sim
		$M_{x,Ed}$ = 0,027 kN·m	---	---	---
		$M_{y,Ed}$ = 0,192 kN·m	---	---	---

Nó 155 [+0; +1200; -36] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
306: CHSH 48.3x3.2 358: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,9 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	1,3%	Sim
Travessas / longarinas					
356: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,414 kN·m	$M_{z,Rd}$ = 0,600 kN·m	69,1%	Sim
		$V_{y,Ed}$ = 0,8 kN	$V_{y,Rd}$ = 15,0 kN	5,2%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 5,0 kN	6,7%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,6%	Sim
		$M_{x,Ed}$ = 0,019 kN·m	---	---	---
		$M_{v,Ed}$ = 0,180 kN·m	---	---	---
357: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,029 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,8%	Sim
		$V_{y,Ed}$ = 0,2 kN	$V_{y,Rd}$ = 15,0 kN	1,1%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 5,0 kN	5,6%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,4%	Sim
		$M_{x,Ed}$ = 0,015 kN·m	---	---	---
		$M_{y,Ed}$ = 0,189 kN·m	---	---	---

Nó 156 [+109; +1200; -36] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
308: CHSH 48.3x3.2 360: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 2,5 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	3,9%	Sim
Travessas / longarinas					
356: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,407 kN·m	$M_{z,Rd}$ = 0,600 kN·m	67,9%	Sim
		$V_{y,Ed}$ = 0,8 kN	$V_{y,Rd}$ = 15,0 kN	5,1%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 5,0 kN	6,7%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,6%	Sim
		$M_{x,Ed}$ = 0,019 kN·m	---	---	---
		$M_{y,Ed}$ = 0,188 kN·m	---	---	---
359: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,009 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,9%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	7,4%	Sim
		N_{Ed} = 1,3 kN	N_{Rd} = 20,0 kN	6,3%	Sim
		$M_{x,Ed}$ = 0,005 kN·m	---	---	---
		$M_{y,Ed}$ = 0,174	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		kN·m			
Diagonais					
361: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 2,8 kN	$N_{c,Rd}$ = 7,0 kN	39,4%	Sim
		$N_{t,Ed}$ = 0,0 kN	$N_{t,Rd}$ = 7,0 kN	0,0%	Sim
		$V_{y,Ed}$ = 0,0 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,068 kN·m	---	---	---
		$M_{y,Ed}$ = 0,054 kN·m	---	---	---
		$M_{z,Ed}$ = 0,011 kN·m	---	---	---

Nó 157 [+0; +1200; +73] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
310: CHSH 48.3x3.2 364: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 1,2 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	1,8%	Sim
Travessas / longarinas					
357: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,024 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,0%	Sim
		$V_{y,Ed}$ = 0,2 kN	$V_{y,Rd}$ = 15,0 kN	1,0%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 5,0 kN	5,6%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,4%	Sim
		$M_{x,Ed}$ = 0,015 kN·m	---	---	---
		$M_{v,Ed}$ = 0,115 kN·m	---	---	---
362: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,404 kN·m	$M_{z,Rd}$ = 0,600 kN·m	67,3%	Sim
		$V_{y,Ed}$ = 1,0 kN	$V_{y,Rd}$ = 15,0 kN	6,4%	Sim
		$V_{z,Ed}$ = 0,8 kN	$V_{z,Rd}$ = 5,0 kN	16,7%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,0%	Sim
		$M_{x,Ed}$ = 0,018 kN·m	---	---	---
		$M_{y,Ed}$ = 0,436 kN·m	---	---	---
363: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,032 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	3,4%	Sim
		N_{Ed} = 1,0 kN	N_{Rd} = 20,0 kN	5,2%	Sim
		$M_{x,Ed}$ = 0,024 kN·m	---	---	---
		$M_{y,Ed}$ = 0,216 kN·m	---	---	---

Nó 158 [+109; +1200; +73] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
312: CHSH 48.3x3.2 366: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 3,4 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	5,2%	Sim
Travessas / longarinas					
359: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,006 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,8%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,0%	Sim
		N_{Ed} = 1,3 kN	N_{Rd} = 20,0 kN	6,3%	Sim
		$M_{x,Ed}$ = 0,005 kN·m	---	---	---
		$M_{y,Ed}$ = 0,022 kN·m	---	---	---
362: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,409 kN·m	$M_{z,Rd}$ = 0,600 kN·m	68,1%	Sim
		$V_{y,Ed}$ = 1,0 kN	$V_{y,Rd}$ = 15,0 kN	6,4%	Sim
		$V_{z,Ed}$ = 0,8 kN	$V_{z,Rd}$ = 5,0 kN	16,7%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,0%	Sim
		$M_{x,Ed}$ = 0,018 kN·m	---	---	---
		$M_{y,Ed}$ = 0,476 kN·m	---	---	---
365: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,020 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,7 kN	$V_{z,Rd}$ = 5,0 kN	13,3%	Sim
		N_{Ed} = 1,2 kN	N_{Rd} = 20,0 kN	5,8%	Sim
		$M_{x,Ed}$ = 0,024 kN·m	---	---	---
		$M_{y,Ed}$ = 0,400 kN·m	---	---	---
Diagonais					
179: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 3,8 kN	$N_{c,Rd}$ = 7,0 kN	54,2%	Sim
		$N_{t,Ed}$ = 0,0 kN	$N_{t,Rd}$ = 7,0 kN	0,0%	Sim
		$V_{y,Ed}$ = 0,0 kN	---	---	---
		$V_{z,Ed}$ = 0,1 kN	---	---	---
		$M_{x,Ed}$ = 0,012 kN·m	---	---	---
		$M_{y,Ed}$ = 0,072 kN·m	---	---	---
		$M_{z,Ed}$ = 0,007 kN·m	---	---	---

Nó 159 [+0; +1200; +330] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
314: CHSH 48.3x3.2 369: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 1,5 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	2,3%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Travessas / longarinas					
363: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,029 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	3,4%	Sim
		N_{Ed} = 1,0 kN	N_{Rd} = 20,0 kN	5,2%	Sim
		$M_{x,Ed}$ = 0,024 kN·m	---	---	---
		$M_{y,Ed}$ = 0,225 kN·m	---	---	---
367: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,490 kN·m	$M_{z,Rd}$ = 0,600 kN·m	81,7%	Sim
		$V_{y,Ed}$ = 1,3 kN	$V_{y,Rd}$ = 15,0 kN	8,9%	Sim
		$V_{z,Ed}$ = 0,6 kN	$V_{z,Rd}$ = 5,0 kN	12,7%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	3,0%	Sim
		$M_{x,Ed}$ = 0,016 kN·m	---	---	---
		$M_{y,Ed}$ = 0,342 kN·m	---	---	---
368: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,038 kN·m	$M_{z,Rd}$ = 0,600 kN·m	6,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,5%	Sim
		N_{Ed} = 1,6 kN	N_{Rd} = 20,0 kN	8,2%	Sim
		$M_{x,Ed}$ = 0,006 kN·m	---	---	---
		$M_{y,Ed}$ = 0,010 kN·m	---	---	---

Nó 160 [+109; +1200; +330] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
316: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 2,4 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	3,8%	Sim
371: CHSH 48.3x3.2					
Travessas / longarinas					
365: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,013 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	7,9%	Sim
		N_{Ed} = 1,2 kN	N_{Rd} = 20,0 kN	5,8%	Sim
		$M_{x,Ed}$ = 0,024 kN·m	---	---	---
		$M_{y,Ed}$ = 0,053 kN·m	---	---	---
367: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,486 kN·m	$M_{z,Rd}$ = 0,600 kN·m	81,0%	Sim
		$V_{y,Ed}$ = 1,3 kN	$V_{y,Rd}$ = 15,0 kN	8,8%	Sim
		$V_{z,Ed}$ = 0,6 kN	$V_{z,Rd}$ = 5,0 kN	12,7%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	3,0%	Sim
		$M_{x,Ed}$ = 0,016 kN·m	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$M_{y,Ed}$ = 0,351 kN·m	---	---	---
370: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,024 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,7 kN	$V_{z,Rd}$ = 5,0 kN	13,0%	Sim
		N_{Ed} = 3,2 kN	N_{Rd} = 20,0 kN	16,1%	Sim
		$M_{x,Ed}$ = 0,010 kN·m	---	---	---
		$M_{y,Ed}$ = 0,331 kN·m	---	---	---
Diagonais					
195: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 0,0 kN	$N_{c,Rd}$ = 7,0 kN	0,0%	Sim
		$N_{t,Ed}$ = 2,2 kN	$N_{t,Rd}$ = 7,0 kN	32,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,003 kN·m	---	---	---
		$M_{y,Ed}$ = 0,067 kN·m	---	---	---
		$M_{z,Ed}$ = 0,038 kN·m	---	---	---

Nó 161 [+0; +1200; +637] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
318: CHSH 48.3x3.2 374: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 1,4 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	2,2%	Sim
Travessas / longarinas					
368: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,036 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,5%	Sim
		N_{Ed} = 1,6 kN	N_{Rd} = 20,0 kN	8,2%	Sim
		$M_{x,Ed}$ = 0,006 kN·m	---	---	---
		$M_{y,Ed}$ = 0,069 kN·m	---	---	---
372: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,467 kN·m	$M_{z,Rd}$ = 0,600 kN·m	77,8%	Sim
		$V_{y,Ed}$ = 1,3 kN	$V_{y,Rd}$ = 15,0 kN	8,5%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	7,8%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	3,0%	Sim
		$M_{x,Ed}$ = 0,018 kN·m	---	---	---
		$M_{y,Ed}$ = 0,197 kN·m	---	---	---
373: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,031 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,8%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		N_{Ed} = 1,2 kN	N_{Rd} = 20,0 kN	6,1%	Sim
		$M_{x,Ed}$ = 0,059 kN·m	---	---	---
		$M_{y,Ed}$ = 0,218 kN·m	---	---	---

Nó 162 [+109; +1200; +637] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
320: CHSH 48.3x3.2 376: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 1,0 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	1,5%	Sim
Travessas / longarinas					
370: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,020 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,6 kN	$V_{z,Rd}$ = 5,0 kN	11,8%	Sim
		N_{Ed} = 3,2 kN	N_{Rd} = 20,0 kN	16,1%	Sim
		$M_{x,Ed}$ = 0,010 kN·m	---	---	---
		$M_{y,Ed}$ = 0,238 kN·m	---	---	---
372: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,452 kN·m	$M_{z,Rd}$ = 0,600 kN·m	75,4%	Sim
		$V_{y,Ed}$ = 1,3 kN	$V_{y,Rd}$ = 15,0 kN	8,4%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	7,8%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	3,0%	Sim
		$M_{x,Ed}$ = 0,018 kN·m	---	---	---
		$M_{y,Ed}$ = 0,228 kN·m	---	---	---
375: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,020 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	7,9%	Sim
		N_{Ed} = 1,5 kN	N_{Rd} = 20,0 kN	7,4%	Sim
		$M_{x,Ed}$ = 0,056 kN·m	---	---	---
		$M_{y,Ed}$ = 0,044 kN·m	---	---	---
Diagonais					
377: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 0,0 kN	$N_{c,Rd}$ = 7,0 kN	0,0%	Sim
		$N_{t,Ed}$ = 1,8 kN	$N_{t,Rd}$ = 7,0 kN	25,1%	Sim
		$V_{y,Ed}$ = 0,1 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,053 kN·m	---	---	---
		$M_{y,Ed}$ = 0,045 kN·m	---	---	---
		$M_{z,Ed}$ = 0,033 kN·m	---	---	---

Nó 163 [+0; +1200; +894] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
322: CHSH 48.3x3.2 380: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 1,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	1,7%	Sim
Travessas / longarinas					
373: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,029 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,8%	Sim
		N_{Ed} = 1,2 kN	N_{Rd} = 20,0 kN	6,1%	Sim
		$M_{x,Ed}$ = 0,059 kN·m	---	---	---
		$M_{y,Ed}$ = 0,145 kN·m	---	---	---
378: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,297 kN·m	$M_{z,Rd}$ = 0,600 kN·m	49,6%	Sim
		$V_{y,Ed}$ = 1,0 kN	$V_{y,Rd}$ = 15,0 kN	6,5%	Sim
		$V_{z,Ed}$ = 1,2 kN	$V_{z,Rd}$ = 5,0 kN	23,2%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	3,0%	Sim
		$M_{x,Ed}$ = 0,015 kN·m	---	---	---
		$M_{y,Ed}$ = 0,650 kN·m	---	---	---
379: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,036 kN·m	$M_{z,Rd}$ = 0,600 kN·m	6,1%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,7%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,4%	Sim
		$M_{x,Ed}$ = 0,068 kN·m	---	---	---
		$M_{y,Ed}$ = 0,308 kN·m	---	---	---

Nó 164 [+109; +1200; +894] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
324: CHSH 48.3x3.2 382: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 2,4 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	3,8%	Sim
Travessas / longarinas					
375: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,014 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,7 kN	$V_{z,Rd}$ = 5,0 kN	13,2%	Sim
		N_{Ed} = 1,5 kN	N_{Rd} = 20,0 kN	7,4%	Sim
		$M_{x,Ed}$ = 0,056 kN·m	---	---	---
		$M_{y,Ed}$ = 0,382	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		kN·m			
378: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,285 kN·m	$M_{z,Rd}$ = 0,600 kN·m	47,4%	Sim
		$V_{y,Ed}$ = 1,0 kN	$V_{y,Rd}$ = 15,0 kN	6,4%	Sim
		$V_{z,Ed}$ = 1,2 kN	$V_{z,Rd}$ = 5,0 kN	23,2%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	3,0%	Sim
		$M_{x,Ed}$ = 0,015 kN·m	---	---	---
		$M_{y,Ed}$ = 0,616 kN·m	---	---	---
381: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,024 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	8,4%	Sim
		N_{Ed} = 3,5 kN	N_{Rd} = 20,0 kN	17,5%	Sim
		$M_{x,Ed}$ = 0,065 kN·m	---	---	---
		$M_{y,Ed}$ = 0,045 kN·m	---	---	---
Diagonais					
206: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 0,0 kN	$N_{c,Rd}$ = 7,0 kN	0,0%	Sim
		$N_{t,Ed}$ = 3,8 kN	$N_{t,Rd}$ = 7,0 kN	54,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,013 kN·m	---	---	---
		$M_{y,Ed}$ = 0,007 kN·m	---	---	---
		$M_{z,Ed}$ = 0,038 kN·m	---	---	---

Nó 165 [+0; +1200; +1201] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
326: CHSH 48.3x3.2 385: CHSH 48.3x3.2	Acero R01	$\Sigma V_{v,Ed}$ = 15,5 kN	$\Sigma V_{v,Rd}$ = 100,0 kN	15,5%	Sim
Travessas / longarinas					
379: CHSH 48.3x3.2	Acero Tub T01	$M_{z,Ed}$ = 0,036 kN·m	$M_{z,Rd}$ = 1,000 kN·m	3,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 25,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 8,0 kN	2,9%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 30,0 kN	0,3%	Sim
		$M_{x,Ed}$ = 0,068 kN·m	---	---	---
		$M_{y,Ed}$ = 0,416 kN·m	---	---	---
383: CHSH 48.3x3.2	Acero Tub T01	$M_{z,Ed}$ = 0,052 kN·m	$M_{z,Rd}$ = 1,000 kN·m	5,2%	Sim
		$V_{y,Ed}$ = 0,6 kN	$V_{y,Rd}$ = 25,0 kN	2,3%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 8,0 kN	4,4%	Sim
		N_{Ed} = 7,1 kN	N_{Rd} = 30,0 kN	23,7%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$M_{x,Ed}$ = 0,017 kN·m	---	---	---
		$M_{y,Ed}$ = 0,212 kN·m	---	---	---
384: CHSH 48.3x3.2	Acero Tub T01	$M_{z,Ed}$ = 0,066 kN·m	$M_{z,Rd}$ = 1,000 kN·m	6,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 25,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 8,0 kN	4,1%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 30,0 kN	1,5%	Sim
		$M_{x,Ed}$ = 0,042 kN·m	---	---	---
		$M_{y,Ed}$ = 0,551 kN·m	---	---	---
Diagonais					
207: CHSH 48.3x2,3	Acero D01	$N_{c,Ed}$ = 17,9 kN	$N_{c,Rd}$ = 15,0 kN	119,5%	Não
		$N_{t,Ed}$ = 16,8 kN	$N_{t,Rd}$ = 17,0 kN	98,8%	Sim
		$V_{y,Ed}$ = 0,0 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,005 kN·m	---	---	---
		$M_{y,Ed}$ = 0,027 kN·m	---	---	---
		$M_{z,Ed}$ = 0,019 kN·m	---	---	---

Erros de comprovação

Resistência à compressão da diagonal insuficiente

Nó 166 [+109; +1200; +1201] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
328: CHSH 48.3x3.2 387: CHSH 48.3x3.2	Acero R01	$\Sigma V_{y,Ed}$ = 8,4 kN	$\Sigma V_{y,Rd}$ = 100,0 kN	8,4%	Sim
Travessas / longarinas					
381: CHSH 48.3x3.2	Acero Tub T01	$M_{z,Ed}$ = 0,022 kN·m	$M_{z,Rd}$ = 1,000 kN·m	2,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 25,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,8 kN	$V_{z,Rd}$ = 8,0 kN	10,6%	Sim
		N_{Ed} = 3,5 kN	N_{Rd} = 30,0 kN	11,7%	Sim
		$M_{x,Ed}$ = 0,065 kN·m	---	---	---
		$M_{y,Ed}$ = 0,711 kN·m	---	---	---
383: CHSH 48.3x3.2	Acero Tub T01	$M_{z,Ed}$ = 0,054 kN·m	$M_{z,Rd}$ = 1,000 kN·m	5,4%	Sim
		$V_{y,Ed}$ = 0,6 kN	$V_{y,Rd}$ = 25,0 kN	2,2%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 8,0 kN	4,4%	Sim
		N_{Ed} = 7,1 kN	N_{Rd} = 30,0 kN	23,7%	Sim
		$M_{x,Ed}$ = 0,017 kN·m	---	---	---
		$M_{y,Ed}$ = 0,168	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		kN·m			
386: CHSH 48.3x3.2	Acero Tub T01	$M_{z,Ed}$ = 0,039 kN·m	$M_{z,Rd}$ = 1,000 kN·m	3,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 25,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 1,0 kN	$V_{z,Rd}$ = 8,0 kN	12,1%	Sim
		N_{Ed} = 2,1 kN	N_{Rd} = 30,0 kN	6,8%	Sim
		$M_{x,Ed}$ = 0,040 kN·m	---	---	---
		$M_{y,Ed}$ = 0,901 kN·m	---	---	---
Diagonais					
388: CHSH 48.3x2,3	Acero D01	$N_{c,Ed}$ = 0,0 kN	$N_{c,Rd}$ = 8,3 kN	0,0%	Sim
		$N_{t,Ed}$ = 2,1 kN	$N_{t,Rd}$ = 17,0 kN	12,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	---	---	---
		$V_{z,Ed}$ = 0,1 kN	---	---	---
		$M_{x,Ed}$ = 0,024 kN·m	---	---	---
		$M_{y,Ed}$ = 0,136 kN·m	---	---	---
		$M_{z,Ed}$ = 0,038 kN·m	---	---	---
389: CHSH 48.3x2,3	Acero D01	$N_{c,Ed}$ = 9,1 kN	$N_{c,Rd}$ = 15,0 kN	60,9%	Sim
		$N_{t,Ed}$ = 7,8 kN	$N_{t,Rd}$ = 17,0 kN	45,7%	Sim
		$V_{y,Ed}$ = 0,0 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,000 kN·m	---	---	---
		$M_{y,Ed}$ = 0,034 kN·m	---	---	---
		$M_{z,Ed}$ = 0,020 kN·m	---	---	---

Nó 167 [+0; +1200; +1508] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
330: CHSH 48.3x3.2 392: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,9 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	1,4%	Sim
Travessas / longarinas					
384: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,022 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 5,0 kN	6,6%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,2%	Sim
		$M_{x,Ed}$ = 0,042 kN·m	---	---	---
		$M_{y,Ed}$ = 0,466 kN·m	---	---	---
390: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,186 kN·m	$M_{z,Rd}$ = 0,600 kN·m	31,1%	Sim
		$V_{y,Ed}$ = 0,8 kN	$V_{y,Rd}$ = 15,0 kN	5,1%	Sim
		$V_{z,Ed}$ = 1,8 kN	$V_{z,Rd}$ = 5,0 kN	35,4%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	3,0%	Sim
		$M_{x,Ed}$ = 0,017 kN·m	---	---	---
		$M_{y,Ed}$ = 0,969 kN·m	---	---	---
391: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,029 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	3,0%	Sim
		N_{Ed} = 2,2 kN	N_{Rd} = 20,0 kN	11,1%	Sim
		$M_{x,Ed}$ = 0,055 kN·m	---	---	---
		$M_{y,Ed}$ = 0,181 kN·m	---	---	---

Nó 168 [+109; +1200; +1508] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
332: CHSH 48.3x3.2 394: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 1,5 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	2,3%	Sim
Travessas / longarinas					
386: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,015 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 5,0 kN	6,0%	Sim
		N_{Ed} = 2,1 kN	N_{Rd} = 20,0 kN	10,3%	Sim
		$M_{x,Ed}$ = 0,040 kN·m	---	---	---
		$M_{y,Ed}$ = 0,170 kN·m	---	---	---
390: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,239 kN·m	$M_{z,Rd}$ = 0,600 kN·m	39,8%	Sim
		$V_{y,Ed}$ = 0,9 kN	$V_{y,Rd}$ = 15,0 kN	6,0%	Sim
		$V_{z,Ed}$ = 1,8 kN	$V_{z,Rd}$ = 5,0 kN	35,4%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	3,0%	Sim
		$M_{x,Ed}$ = 0,017 kN·m	---	---	---
		$M_{y,Ed}$ = 0,963 kN·m	---	---	---
393: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,020 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,8 kN	$V_{z,Rd}$ = 5,0 kN	15,3%	Sim
		N_{Ed} = 2,7 kN	N_{Rd} = 20,0 kN	13,5%	Sim
		$M_{x,Ed}$ = 0,050 kN·m	---	---	---
		$M_{y,Ed}$ = 0,499 kN·m	---	---	---
Diagonais					
218: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 3,8 kN	$N_{c,Rd}$ = 7,0 kN	53,7%	Sim
		$N_{t,Ed}$ = 0,0 kN	$N_{t,Rd}$ = 7,0 kN	0,0%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$V_{y,Ed}$ = 0,1 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,005 kN·m	---	---	---
		$M_{y,Ed}$ = 0,053 kN·m	---	---	---
		$M_{z,Ed}$ = 0,030 kN·m	---	---	---

Nó 169 [+0; +1200; +1815] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
334: CHSH 48.3x3.2 397: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 1,3 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	2,0%	Sim
Travessas / longarinas					
391: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,045 kN·m	$M_{z,Rd}$ = 0,600 kN·m	7,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	3,0%	Sim
		N_{Ed} = 2,2 kN	N_{Rd} = 20,0 kN	11,1%	Sim
		$M_{x,Ed}$ = 0,055 kN·m	---	---	---
		$M_{y,Ed}$ = 0,273 kN·m	---	---	---
395: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,366 kN·m	$M_{z,Rd}$ = 0,600 kN·m	60,9%	Sim
		$V_{y,Ed}$ = 1,1 kN	$V_{y,Rd}$ = 15,0 kN	7,5%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	8,1%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	3,2%	Sim
		$M_{x,Ed}$ = 0,014 kN·m	---	---	---
		$M_{y,Ed}$ = 0,217 kN·m	---	---	---
396: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,027 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,1%	Sim
		N_{Ed} = 2,6 kN	N_{Rd} = 20,0 kN	13,2%	Sim
		$M_{x,Ed}$ = 0,015 kN·m	---	---	---
		$M_{y,Ed}$ = 0,104 kN·m	---	---	---

Nó 170 [+109; +1200; +1815] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
336: CHSH 48.3x3.2	Acero R01	$\Sigma V_{y,Ed}$ = 2,2 kN	$\Sigma V_{v,Rd}$ = 100,0 kN	2,2%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
399: CHSH 48.3x3.2					
Travessas / longarinas					
393: CHSH 48.3x3.2	Acero Tub T01	$M_{z,Ed}$ = 0,025 kN·m	$M_{z,Rd}$ = 1,000 kN·m	2,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 25,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,5 kN	$V_{z,Rd}$ = 8,0 kN	6,1%	Sim
		N_{Ed} = 2,7 kN	N_{Rd} = 30,0 kN	9,0%	Sim
		$M_{x,Ed}$ = 0,050 kN·m	---	---	---
		$M_{y,Ed}$ = 0,076 kN·m	---	---	---
395: CHSH 48.3x3.2	Acero Tub T01	$M_{z,Ed}$ = 0,388 kN·m	$M_{z,Rd}$ = 1,000 kN·m	38,8%	Sim
		$V_{y,Ed}$ = 1,2 kN	$V_{y,Rd}$ = 25,0 kN	4,7%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 8,0 kN	5,1%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 30,0 kN	2,2%	Sim
		$M_{x,Ed}$ = 0,014 kN·m	---	---	---
		$M_{y,Ed}$ = 0,226 kN·m	---	---	---
398: CHSH 48.3x3.2	Acero Tub T01	$M_{z,Ed}$ = 0,021 kN·m	$M_{z,Rd}$ = 1,000 kN·m	2,1%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 25,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,6 kN	$V_{z,Rd}$ = 8,0 kN	7,4%	Sim
		N_{Ed} = 6,2 kN	N_{Rd} = 30,0 kN	20,6%	Sim
		$M_{x,Ed}$ = 0,012 kN·m	---	---	---
		$M_{y,Ed}$ = 0,246 kN·m	---	---	---
Diagonais					
224: CHSH 48.3x2,3	Acero D01	$N_{c,Ed}$ = 7,1 kN	$N_{c,Rd}$ = 8,3 kN	85,6%	Sim
		$N_{t,Ed}$ = 0,0 kN	$N_{t,Rd}$ = 17,0 kN	0,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	---	---	---
		$V_{z,Ed}$ = 0,1 kN	---	---	---
		$M_{x,Ed}$ = 0,007 kN·m	---	---	---
		$M_{y,Ed}$ = 0,107 kN·m	---	---	---
		$M_{z,Ed}$ = 0,033 kN·m	---	---	---
400: CHSH 48.3x2,3	Acero D01	$N_{c,Ed}$ = 2,5 kN	$N_{c,Rd}$ = 8,3 kN	30,0%	Sim
		$N_{t,Ed}$ = 0,0 kN	$N_{t,Rd}$ = 17,0 kN	0,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,040 kN·m	---	---	---
		$M_{y,Ed}$ = 0,125 kN·m	---	---	---
		$M_{z,Ed}$ = 0,041 kN·m	---	---	---

Nó 171 [+0; +1200; +2122] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
338: CHSH 48.3x3.2 403: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 1,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	1,8%	Sim
Travessas / longarinas					
396: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,042 kN·m	$M_{z,Rd}$ = 0,600 kN·m	6,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,1%	Sim
		N_{Ed} = 2,6 kN	N_{Rd} = 20,0 kN	13,2%	Sim
		$M_{x,Ed}$ = 0,015 kN·m	---	---	---
		$M_{y,Ed}$ = 0,061 kN·m	---	---	---
401: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,409 kN·m	$M_{z,Rd}$ = 0,600 kN·m	68,2%	Sim
		$V_{y,Ed}$ = 1,1 kN	$V_{y,Rd}$ = 15,0 kN	7,1%	Sim
		$V_{z,Ed}$ = 0,5 kN	$V_{z,Rd}$ = 5,0 kN	9,1%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,6%	Sim
		$M_{x,Ed}$ = 0,015 kN·m	---	---	---
		$M_{y,Ed}$ = 0,213 kN·m	---	---	---
402: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,026 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	3,9%	Sim
		N_{Ed} = 2,2 kN	N_{Rd} = 20,0 kN	11,1%	Sim
		$M_{x,Ed}$ = 0,052 kN·m	---	---	---
		$M_{y,Ed}$ = 0,125 kN·m	---	---	---

Nó 172 [+109; +1200; +2122] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
340: CHSH 48.3x3.2 405: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 4,7 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	7,2%	Sim
Travessas / longarinas					
398: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,024 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,1%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,7 kN	$V_{z,Rd}$ = 5,0 kN	13,0%	Sim
		N_{Ed} = 6,2 kN	N_{Rd} = 20,0 kN	30,8%	Sim
		$M_{x,Ed}$ = 0,012 kN·m	---	---	---
		$M_{y,Ed}$ = 0,330 kN·m	---	---	---
401: CHSH	Acero Tub T02	$M_{z,Ed}$ = 0,393 kN·m	$M_{z,Rd}$ = 0,600 kN·m	65,5%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
48.3x3.2		$V_{y,Ed}$ = 1,1 kN	$V_{y,Rd}$ = 15,0 kN	7,2%	Sim
		$V_{z,Ed}$ = 0,5 kN	$V_{z,Rd}$ = 5,0 kN	9,1%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,6%	Sim
		$M_{x,Ed}$ = 0,015 kN·m	---	---	---
		$M_{y,Ed}$ = 0,283 kN·m	---	---	---
404: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,005 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,9%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,2%	Sim
		N_{Ed} = 1,9 kN	N_{Rd} = 20,0 kN	9,6%	Sim
		$M_{x,Ed}$ = 0,031 kN·m	---	---	---
		$M_{y,Ed}$ = 0,024 kN·m	---	---	---
Diagonais					
406: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 6,8 kN	$N_{c,Rd}$ = 7,0 kN	96,5%	Sim
		$N_{t,Ed}$ = 0,0 kN	$N_{t,Rd}$ = 7,0 kN	0,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,050 kN·m	---	---	---
		$M_{y,Ed}$ = 0,027 kN·m	---	---	---
		$M_{z,Ed}$ = 0,040 kN·m	---	---	---
407: CHSH 48.3x2,3	Acero D01	$N_{c,Ed}$ = 1,3 kN	$N_{c,Rd}$ = 8,0 kN	16,8%	Sim
		$N_{t,Ed}$ = 0,8 kN	$N_{t,Rd}$ = 8,0 kN	10,0%	Sim
		$V_{y,Ed}$ = 0,0 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,046 kN·m	---	---	---
		$M_{y,Ed}$ = 0,062 kN·m	---	---	---
		$M_{z,Ed}$ = 0,017 kN·m	---	---	---

Nó 173 [+0; +1200; +2231] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
342: CHSH 48.3x3.2 410: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 1,0 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	1,6%	Sim
Travessas / longarinas					
402: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,030 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	3,9%	Sim
		N_{Ed} = 2,2 kN	N_{Rd} = 20,0 kN	11,1%	Sim
		$M_{x,Ed}$ = 0,052	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		kN·m			
		$M_{y,Ed}$ = 0,086 kN·m	---	---	---
408: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,351 kN·m	$M_{z,Rd}$ = 0,600 kN·m	58,5%	Sim
		$V_{y,Ed}$ = 0,9 kN	$V_{y,Rd}$ = 15,0 kN	6,1%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 5,0 kN	6,5%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	1,1%	Sim
		$M_{x,Ed}$ = 0,014 kN·m	---	---	---
		$M_{y,Ed}$ = 0,204 kN·m	---	---	---
409: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,028 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,0%	Sim
		N_{Ed} = 2,0 kN	N_{Rd} = 20,0 kN	10,0%	Sim
		$M_{x,Ed}$ = 0,075 kN·m	---	---	---
		$M_{y,Ed}$ = 0,128 kN·m	---	---	---

Nó 174 [+109; +1200; +2231] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
344: CHSH 48.3x3.2 412: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 2,5 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	3,8%	Sim
Travessas / longarinas					
404: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,006 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,0%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	7,2%	Sim
		N_{Ed} = 1,9 kN	N_{Rd} = 20,0 kN	9,6%	Sim
		$M_{x,Ed}$ = 0,031 kN·m	---	---	---
		$M_{y,Ed}$ = 0,157 kN·m	---	---	---
408: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,353 kN·m	$M_{z,Rd}$ = 0,600 kN·m	58,8%	Sim
		$V_{y,Ed}$ = 0,9 kN	$V_{y,Rd}$ = 15,0 kN	6,1%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 5,0 kN	6,5%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	1,1%	Sim
		$M_{x,Ed}$ = 0,014 kN·m	---	---	---
		$M_{y,Ed}$ = 0,153 kN·m	---	---	---
411: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,012 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,1%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 5,0 kN	6,2%	Sim
		N_{Ed} = 2,0 kN	N_{Rd} = 20,0 kN	10,2%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$M_{x,Ed}$ = 0,076 kN·m	---	---	---
		$M_{y,Ed}$ = 0,033 kN·m	---	---	---
Diagonais					
225: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 1,0 kN	$N_{c,Rd}$ = 7,0 kN	14,2%	Sim
		$N_{t,Ed}$ = 1,7 kN	$N_{t,Rd}$ = 7,0 kN	24,2%	Sim
		$V_{y,Ed}$ = 0,0 kN	---	---	---
		$V_{z,Ed}$ = 0,1 kN	---	---	---
		$M_{x,Ed}$ = 0,030 kN·m	---	---	---
		$M_{y,Ed}$ = 0,107 kN·m	---	---	---
		$M_{z,Ed}$ = 0,012 kN·m	---	---	---

Nó 175 [+0; +1200; +2438] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
346: CHSH 48.3x3.2 415: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,8 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	1,2%	Sim
Travessas / longarinas					
409: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,020 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,0%	Sim
		N_{Ed} = 2,0 kN	N_{Rd} = 20,0 kN	10,0%	Sim
		$M_{x,Ed}$ = 0,075 kN·m	---	---	---
		$M_{y,Ed}$ = 0,082 kN·m	---	---	---
413: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,182 kN·m	$M_{z,Rd}$ = 0,600 kN·m	30,4%	Sim
		$V_{y,Ed}$ = 0,7 kN	$V_{y,Rd}$ = 15,0 kN	4,4%	Sim
		$V_{z,Ed}$ = 0,9 kN	$V_{z,Rd}$ = 5,0 kN	18,8%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,2%	Sim
		$M_{x,Ed}$ = 0,012 kN·m	---	---	---
		$M_{y,Ed}$ = 0,509 kN·m	---	---	---
414: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,024 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 5,0 kN	5,8%	Sim
		N_{Ed} = 1,2 kN	N_{Rd} = 20,0 kN	6,1%	Sim
		$M_{x,Ed}$ = 0,054 kN·m	---	---	---
		$M_{y,Ed}$ = 0,307 kN·m	---	---	---

Nó 176 [+109; +1200; +2438] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
348: CHSH 48.3x3.2 417: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,8 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	1,2%	Sim
Travessas / longarinas					
411: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,007 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,6 kN	$V_{z,Rd}$ = 5,0 kN	11,0%	Sim
		N_{Ed} = 2,0 kN	N_{Rd} = 20,0 kN	10,2%	Sim
		$M_{x,Ed}$ = 0,076 kN·m	---	---	---
		$M_{y,Ed}$ = 0,244 kN·m	---	---	---
413: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,185 kN·m	$M_{z,Rd}$ = 0,600 kN·m	30,9%	Sim
		$V_{y,Ed}$ = 0,7 kN	$V_{y,Rd}$ = 15,0 kN	4,5%	Sim
		$V_{z,Ed}$ = 0,9 kN	$V_{z,Rd}$ = 5,0 kN	18,8%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,2%	Sim
		$M_{x,Ed}$ = 0,012 kN·m	---	---	---
		$M_{y,Ed}$ = 0,517 kN·m	---	---	---
416: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,012 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	3,2%	Sim
		N_{Ed} = 1,2 kN	N_{Rd} = 20,0 kN	5,8%	Sim
		$M_{x,Ed}$ = 0,055 kN·m	---	---	---
		$M_{y,Ed}$ = 0,156 kN·m	---	---	---

Nó 177 [+0; +1200; +2645] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
350: CHSH 48.3x3.2 420: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,4 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,7%	Sim
Travessas / longarinas					
414: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,021 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 5,0 kN	5,8%	Sim
		N_{Ed} = 1,2 kN	N_{Rd} = 20,0 kN	6,1%	Sim
		$M_{x,Ed}$ = 0,054 kN·m	---	---	---
		$M_{y,Ed}$ = 0,290	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		kN·m			
418: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,061 kN·m	$M_{z,Rd}$ = 0,600 kN·m	10,2%	Sim
		$V_{y,Ed}$ = 0,4 kN	$V_{y,Rd}$ = 15,0 kN	2,5%	Sim
		$V_{z,Ed}$ = 1,1 kN	$V_{z,Rd}$ = 5,0 kN	21,5%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	1,2%	Sim
		$M_{x,Ed}$ = 0,012 kN·m	---	---	---
		$M_{y,Ed}$ = 0,587 kN·m	---	---	---
419: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,017 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	8,8%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,5%	Sim
		$M_{x,Ed}$ = 0,024 kN·m	---	---	---
		$M_{y,Ed}$ = 0,183 kN·m	---	---	---

Nó 178 [+109; +1200; +2645] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
352: CHSH 48.3x3.2 423: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 2,8 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	4,2%	Sim
Travessas / longarinas					
416: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,007 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,1%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,7 kN	$V_{z,Rd}$ = 5,0 kN	14,0%	Sim
		N_{Ed} = 1,2 kN	N_{Rd} = 20,0 kN	5,8%	Sim
		$M_{x,Ed}$ = 0,055 kN·m	---	---	---
		$M_{y,Ed}$ = 0,433 kN·m	---	---	---
418: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,056 kN·m	$M_{z,Rd}$ = 0,600 kN·m	9,3%	Sim
		$V_{y,Ed}$ = 0,4 kN	$V_{y,Rd}$ = 15,0 kN	2,5%	Sim
		$V_{z,Ed}$ = 1,1 kN	$V_{z,Rd}$ = 5,0 kN	21,5%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	1,2%	Sim
		$M_{x,Ed}$ = 0,012 kN·m	---	---	---
		$M_{y,Ed}$ = 0,584 kN·m	---	---	---
421: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,047 kN·m	$M_{z,Rd}$ = 0,600 kN·m	7,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,4%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,3%	Sim
		$M_{x,Ed}$ = 0,003 kN·m	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$M_{y,Ed}$ = 0,112 kN·m	---	---	---
422: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,004 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,7%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,1%	Sim
		N_{Ed} = 1,0 kN	N_{Rd} = 20,0 kN	5,2%	Sim
		$M_{x,Ed}$ = 0,022 kN·m	---	---	---
		$M_{y,Ed}$ = 0,138 kN·m	---	---	---
Diagonais					
424: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 2,7 kN	$N_{c,Rd}$ = 7,0 kN	38,4%	Sim
		$N_{t,Ed}$ = 1,2 kN	$N_{t,Rd}$ = 7,0 kN	17,4%	Sim
		$V_{y,Ed}$ = 0,0 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,010 kN·m	---	---	---
		$M_{y,Ed}$ = 0,022 kN·m	---	---	---
		$M_{z,Ed}$ = 0,013 kN·m	---	---	---

Nó 179 [+416; +1200; +2645] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
244: CHSH 48.3x3.2 426: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,5 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,8%	Sim
Travessas / longarinas					
421: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,046 kN·m	$M_{z,Rd}$ = 0,600 kN·m	7,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,4%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,3%	Sim
		$M_{x,Ed}$ = 0,003 kN·m	---	---	---
		$M_{y,Ed}$ = 0,108 kN·m	---	---	---
425: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,005 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,9%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,0%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,6%	Sim
		$M_{x,Ed}$ = 0,019 kN·m	---	---	---
		$M_{y,Ed}$ = 0,103 kN·m	---	---	---
Diagonais					
427: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 0,5 kN	$N_{c,Rd}$ = 7,0 kN	6,6%	Sim
		$N_{t,Ed}$ = 0,3 kN	$N_{t,Rd}$ = 7,0 kN	3,9%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$V_{y,Ed}$ = 0,0 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,005 kN·m	---	---	---
		$M_{y,Ed}$ = 0,020 kN·m	---	---	---
		$M_{z,Ed}$ = 0,012 kN·m	---	---	---

Nó 180 [+0; +1200; +2754] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
354: CHSH 48.3x3.2 429: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,3%	Sim
Travessas / longarinas					
419: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,019 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,1%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	8,8%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,5%	Sim
		$M_{x,Ed}$ = 0,024 kN·m	---	---	---
		$M_{y,Ed}$ = 0,294 kN·m	---	---	---
428: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,020 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	1,0%	Sim
		$V_{z,Ed}$ = 0,5 kN	$V_{z,Rd}$ = 5,0 kN	9,7%	Sim
		N_{Ed} = 0,7 kN	N_{Rd} = 20,0 kN	3,7%	Sim
		$M_{x,Ed}$ = 0,014 kN·m	---	---	---
		$M_{y,Ed}$ = 0,259 kN·m	---	---	---

Nó 181 [+109; +1200; +2754] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
355: CHSH 48.3x3.2 431: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 2,0 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	3,1%	Sim
Travessas / longarinas					
422: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,003 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,6%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,6 kN	$V_{z,Rd}$ = 5,0 kN	12,9%	Sim
		N_{Ed} = 1,0 kN	N_{Rd} = 20,0 kN	5,2%	Sim
		$M_{x,Ed}$ = 0,022	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		kN·m			
		$M_{y,Ed}$ = 0,323 kN·m	---	---	---
428: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,024 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,9%	Sim
		$V_{y,Ed}$ = 0,2 kN	$V_{y,Rd}$ = 15,0 kN	1,0%	Sim
		$V_{z,Ed}$ = 0,5 kN	$V_{z,Rd}$ = 5,0 kN	9,7%	Sim
		N_{Ed} = 0,7 kN	N_{Rd} = 20,0 kN	3,7%	Sim
		$M_{x,Ed}$ = 0,014 kN·m	---	---	---
		$M_{y,Ed}$ = 0,270 kN·m	---	---	---
430: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,026 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,6%	Sim
		N_{Ed} = 3,8 kN	N_{Rd} = 20,0 kN	19,1%	Sim
		$M_{x,Ed}$ = 0,002 kN·m	---	---	---
		$M_{y,Ed}$ = 0,032 kN·m	---	---	---
Diagonais					
242: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 2,9 kN	$N_{c,Rd}$ = 7,0 kN	41,1%	Sim
		$N_{t,Ed}$ = 1,7 kN	$N_{t,Rd}$ = 7,0 kN	24,8%	Sim
		$V_{y,Ed}$ = 0,0 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,002 kN·m	---	---	---
		$M_{y,Ed}$ = 0,005 kN·m	---	---	---
		$M_{z,Ed}$ = 0,014 kN·m	---	---	---
250: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 6,6 kN	$N_{c,Rd}$ = 7,0 kN	93,7%	Sim
		$N_{t,Ed}$ = 6,4 kN	$N_{t,Rd}$ = 7,0 kN	91,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,007 kN·m	---	---	---
		$M_{y,Ed}$ = 0,015 kN·m	---	---	---
		$M_{z,Ed}$ = 0,025 kN·m	---	---	---

Nó 182 [+416; +1200; +2754] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
251: CHSH 48.3x3.2 433: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 3,3 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	5,0%	Sim
Travessas / longarinas					
425: CHSH	Acero Tub T02	$M_{z,Ed}$ = 0,007 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,1%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
48.3x3.2		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,0%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,6%	Sim
		$M_{x,Ed}$ = 0,019 kN·m	---	---	---
		$M_{y,Ed}$ = 0,116 kN·m	---	---	---
430: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,025 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,6%	Sim
		N_{Ed} = 3,8 kN	N_{Rd} = 20,0 kN	19,1%	Sim
		$M_{x,Ed}$ = 0,002 kN·m	---	---	---
		$M_{y,Ed}$ = 0,061 kN·m	---	---	---
Diagonais					
245: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 0,9 kN	$N_{c,Rd}$ = 7,0 kN	12,3%	Sim
		$N_{t,Ed}$ = 0,8 kN	$N_{t,Rd}$ = 7,0 kN	11,5%	Sim
		$V_{y,Ed}$ = 0,0 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,008 kN·m	---	---	---
		$M_{y,Ed}$ = 0,014 kN·m	---	---	---
		$M_{z,Ed}$ = 0,015 kN·m	---	---	---
432: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 4,4 kN	$N_{c,Rd}$ = 7,0 kN	62,9%	Sim
		$N_{t,Ed}$ = 4,1 kN	$N_{t,Rd}$ = 7,0 kN	58,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,002 kN·m	---	---	---
		$M_{y,Ed}$ = 0,043 kN·m	---	---	---
		$M_{z,Ed}$ = 0,026 kN·m	---	---	---

Nó 183 [+0; +1250; -36] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
358: CHSH 48.3x3.2 436: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,6 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,9%	Sim
Travessas / longarinas					
434: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,308 kN·m	$M_{z,Rd}$ = 0,600 kN·m	51,3%	Sim
		$V_{y,Ed}$ = 0,6 kN	$V_{y,Rd}$ = 15,0 kN	3,9%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 5,0 kN	6,0%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,5%	Sim
		$M_{x,Ed}$ = 0,017	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		kN·m			
		$M_{y,Ed}$ = 0,163 kN·m	---	---	---
435: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,019 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,6%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	1,9%	Sim
		$M_{x,Ed}$ = 0,026 kN·m	---	---	---
		$M_{y,Ed}$ = 0,142 kN·m	---	---	---

Nó 184 [+109; +1250; -36] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
360: CHSH 48.3x3.2 438: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,6 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,9%	Sim
Travessas / longarinas					
434: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,306 kN·m	$M_{z,Rd}$ = 0,600 kN·m	50,9%	Sim
		$V_{y,Ed}$ = 0,6 kN	$V_{y,Rd}$ = 15,0 kN	3,9%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 5,0 kN	6,0%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,5%	Sim
		$M_{x,Ed}$ = 0,017 kN·m	---	---	---
		$M_{y,Ed}$ = 0,164 kN·m	---	---	---
437: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,006 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,1%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,3%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,2%	Sim
		$M_{x,Ed}$ = 0,023 kN·m	---	---	---
		$M_{y,Ed}$ = 0,139 kN·m	---	---	---

Nó 185 [+0; +1250; +73] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
364: CHSH 48.3x3.2 440: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
435: CHSH	Acero Tub T02	$M_{z,Ed}$ = 0,016 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,7%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
48.3x3.2		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,6%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	1,9%	Sim
		$M_{x,Ed}$ = 0,026 kN·m	---	---	---
		$M_{y,Ed}$ = 0,057 kN·m	---	---	---
439: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,029 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,9%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,3%	Sim
		$M_{x,Ed}$ = 0,019 kN·m	---	---	---
		$M_{y,Ed}$ = 0,116 kN·m	---	---	---

Nó 186 [+109; +1250; +73] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
366: CHSH 48.3x3.2 442: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
437: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,004 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,6%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,3%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,2%	Sim
		$M_{x,Ed}$ = 0,023 kN·m	---	---	---
		$M_{y,Ed}$ = 0,071 kN·m	---	---	---
441: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,023 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,7%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	2,8%	Sim
		$M_{x,Ed}$ = 0,020 kN·m	---	---	---
		$M_{y,Ed}$ = 0,108 kN·m	---	---	---

Nó 187 [+0; +1250; +330] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
369: CHSH 48.3x3.2 444: CHSH	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,2%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
48.3x3.2					
Travessas / longarinas					
439: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,025 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,1%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,9%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,3%	Sim
		$M_{x,Ed}$ = 0,019 kN·m	---	---	---
		$M_{y,Ed}$ = 0,123 kN·m	---	---	---
443: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,035 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,2%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	2,8%	Sim
		$M_{x,Ed}$ = 0,007 kN·m	---	---	---
		$M_{y,Ed}$ = 0,048 kN·m	---	---	---

Nó 188 [+109; +1250; +330] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
371: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,2%	Sim
446: CHSH 48.3x3.2					
Travessas / longarinas					
441: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,013 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,7%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	2,8%	Sim
		$M_{x,Ed}$ = 0,020 kN·m	---	---	---
		$M_{y,Ed}$ = 0,117 kN·m	---	---	---
445: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,028 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,3%	Sim
		N_{Ed} = 0,8 kN	N_{Rd} = 20,0 kN	3,8%	Sim
		$M_{x,Ed}$ = 0,006 kN·m	---	---	---
		$M_{y,Ed}$ = 0,048 kN·m	---	---	---

Nó 189 [+0; +1250; +637] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
374: CHSH 48.3x3.2 448: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
443: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,031 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,2%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	2,8%	Sim
		$M_{x,Ed}$ = 0,007 kN·m	---	---	---
		$M_{y,Ed}$ = 0,080 kN·m	---	---	---
447: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,027 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,7%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	3,0%	Sim
		$M_{x,Ed}$ = 0,051 kN·m	---	---	---
		$M_{y,Ed}$ = 0,122 kN·m	---	---	---

Nó 190 [+109; +1250; +637] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
376: CHSH 48.3x3.2 450: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
445: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,023 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,3%	Sim
		N_{Ed} = 0,8 kN	N_{Rd} = 20,0 kN	3,8%	Sim
		$M_{x,Ed}$ = 0,006 kN·m	---	---	---
		$M_{y,Ed}$ = 0,086 kN·m	---	---	---
449: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,020 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,7%	Sim
		N_{Ed} = 0,7 kN	N_{Rd} = 20,0 kN	3,7%	Sim
		$M_{x,Ed}$ = 0,052 kN·m	---	---	---
		$M_{y,Ed}$ = 0,116 kN·m	---	---	---

Nó 191 [+0; +1250; +894] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
380: CHSH 48.3x3.2 452: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
447: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,024 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,7%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	3,0%	Sim
		$M_{x,Ed}$ = 0,051 kN·m	---	---	---
		$M_{v,Ed}$ = 0,034 kN·m	---	---	---
451: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,033 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	3,9%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	3,2%	Sim
		$M_{x,Ed}$ = 0,044 kN·m	---	---	---
		$M_{y,Ed}$ = 0,196 kN·m	---	---	---

Nó 192 [+109; +1250; +894] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
382: CHSH 48.3x3.2 454: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
449: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,014 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,7%	Sim
		N_{Ed} = 0,7 kN	N_{Rd} = 20,0 kN	3,7%	Sim
		$M_{x,Ed}$ = 0,052 kN·m	---	---	---
		$M_{y,Ed}$ = 0,026 kN·m	---	---	---
453: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,026 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	3,9%	Sim
		N_{Ed} = 0,8 kN	N_{Rd} = 20,0 kN	4,2%	Sim
		$M_{x,Ed}$ = 0,044 kN·m	---	---	---
		$M_{y,Ed}$ = 0,199	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		kN·m			

Nó 193 [+0; +1250; +1201] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
385: CHSH 48.3x3.2 456: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,3%	Sim
Travessas / longarinas					
451: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,030 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,1%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	3,9%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	3,2%	Sim
		$M_{x,Ed}$ = 0,044 kN·m	---	---	---
		$M_{y,Ed}$ = 0,410 kN·m	---	---	---
455: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,061 kN·m	$M_{z,Rd}$ = 0,600 kN·m	10,1%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,7%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,5%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	3,2%	Sim
		$M_{x,Ed}$ = 0,023 kN·m	---	---	---
		$M_{y,Ed}$ = 0,442 kN·m	---	---	---

Nó 194 [+109; +1250; +1201] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
387: CHSH 48.3x3.2 458: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,3%	Sim
Travessas / longarinas					
453: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,024 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	3,9%	Sim
		N_{Ed} = 0,8 kN	N_{Rd} = 20,0 kN	4,2%	Sim
		$M_{x,Ed}$ = 0,044 kN·m	---	---	---
		$M_{y,Ed}$ = 0,400 kN·m	---	---	---
457: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,037 kN·m	$M_{z,Rd}$ = 0,600 kN·m	6,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,6%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		N_{Ed} = 0,8 kN	N_{Rd} = 20,0 kN	3,8%	Sim
		$M_{x,Ed}$ = 0,022 kN·m	---	---	---
		$M_{y,Ed}$ = 0,452 kN·m	---	---	---

Nó 195 [+0; +1250; +1508] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
392: CHSH 48.3x3.2 460: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
455: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,018 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,1%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,5%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	3,2%	Sim
		$M_{x,Ed}$ = 0,023 kN·m	---	---	---
		$M_{y,Ed}$ = 0,249 kN·m	---	---	---
459: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,026 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,9%	Sim
		N_{Ed} = 0,7 kN	N_{Rd} = 20,0 kN	3,6%	Sim
		$M_{x,Ed}$ = 0,047 kN·m	---	---	---
		$M_{y,Ed}$ = 0,029 kN·m	---	---	---

Nó 196 [+109; +1250; +1508] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
394: CHSH 48.3x3.2 462: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
457: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,016 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,6%	Sim
		N_{Ed} = 0,8 kN	N_{Rd} = 20,0 kN	3,8%	Sim
		$M_{x,Ed}$ = 0,022 kN·m	---	---	---
		$M_{y,Ed}$ = 0,255 kN·m	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
461: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,021 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,8%	Sim
		N_{Ed} = 0,7 kN	N_{Rd} = 20,0 kN	3,6%	Sim
		$M_{x,Ed}$ = 0,046 kN·m	---	---	---
		$M_{y,Ed}$ = 0,031 kN·m	---	---	---

Nó 197 [+0; +1250; +1815] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
397: CHSH 48.3x3.2 464: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,3%	Sim
Travessas / longarinas					
459: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,040 kN·m	$M_{z,Rd}$ = 0,600 kN·m	6,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,9%	Sim
		N_{Ed} = 0,7 kN	N_{Rd} = 20,0 kN	3,6%	Sim
		$M_{x,Ed}$ = 0,047 kN·m	---	---	---
		$M_{y,Ed}$ = 0,160 kN·m	---	---	---
463: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,023 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,9%	Sim
		N_{Ed} = 0,7 kN	N_{Rd} = 20,0 kN	3,7%	Sim
		$M_{x,Ed}$ = 0,012 kN·m	---	---	---
		$M_{y,Ed}$ = 0,116 kN·m	---	---	---

Nó 198 [+109; +1250; +1815] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
399: CHSH 48.3x3.2 466: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
461: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,026 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,8%	Sim
		N_{Ed} = 0,7 kN	N_{Rd} = 20,0 kN	3,6%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$M_{x,Ed}$ = 0,046 kN·m	---	---	---
		$M_{y,Ed}$ = 0,155 kN·m	---	---	---
465: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,019 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,8%	Sim
		N_{Ed} = 0,8 kN	N_{Rd} = 20,0 kN	4,1%	Sim
		$M_{x,Ed}$ = 0,012 kN·m	---	---	---
		$M_{y,Ed}$ = 0,114 kN·m	---	---	---

Nó 199 [+0; +1250; +2122] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
403: CHSH 48.3x3.2 468: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
463: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,037 kN·m	$M_{z,Rd}$ = 0,600 kN·m	6,1%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,9%	Sim
		N_{Ed} = 0,7 kN	N_{Rd} = 20,0 kN	3,7%	Sim
		$M_{x,Ed}$ = 0,012 kN·m	---	---	---
		$M_{y,Ed}$ = 0,016 kN·m	---	---	---
467: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,020 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,2%	Sim
		N_{Ed} = 0,7 kN	N_{Rd} = 20,0 kN	3,6%	Sim
		$M_{x,Ed}$ = 0,035 kN·m	---	---	---
		$M_{y,Ed}$ = 0,033 kN·m	---	---	---

Nó 200 [+109; +1250; +2122] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
405: CHSH 48.3x3.2 470: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
465: CHSH	Acero Tub T02	$M_{z,Ed}$ = 0,026	$M_{z,Rd}$ = 0,600	4,4%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
48.3x3.2		kN·m	kN·m		
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,8%	Sim
		N_{Ed} = 0,8 kN	N_{Rd} = 20,0 kN	4,1%	Sim
		$M_{x,Ed}$ = 0,012 kN·m	---	---	---
		$M_{y,Ed}$ = 0,009 kN·m	---	---	---
469: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,002 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,4%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,4%	Sim
		N_{Ed} = 0,8 kN	N_{Rd} = 20,0 kN	3,9%	Sim
		$M_{x,Ed}$ = 0,036 kN·m	---	---	---
		$M_{y,Ed}$ = 0,008 kN·m	---	---	---

Nó 201 [+0; +1250; +2231] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
410: CHSH 48.3x3.2 472: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
467: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,023 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,2%	Sim
		N_{Ed} = 0,7 kN	N_{Rd} = 20,0 kN	3,6%	Sim
		$M_{x,Ed}$ = 0,035 kN·m	---	---	---
		$M_{y,Ed}$ = 0,021 kN·m	---	---	---
471: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,022 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,3%	Sim
		N_{Ed} = 0,7 kN	N_{Rd} = 20,0 kN	3,4%	Sim
		$M_{x,Ed}$ = 0,063 kN·m	---	---	---
		$M_{y,Ed}$ = 0,063 kN·m	---	---	---

Nó 202 [+109; +1250; +2231] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
412: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,1%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
474: CHSH 48.3x3.2					
Travessas / longarinas					
469: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,006 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,0%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,4%	Sim
		N_{Ed} = 0,8 kN	N_{Rd} = 20,0 kN	3,9%	Sim
		$M_{x,Ed}$ = 0,036 kN·m	---	---	---
		$M_{y,Ed}$ = 0,020 kN·m	---	---	---
473: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,012 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,5%	Sim
		N_{Ed} = 0,7 kN	N_{Rd} = 20,0 kN	3,6%	Sim
		$M_{x,Ed}$ = 0,061 kN·m	---	---	---
		$M_{y,Ed}$ = 0,080 kN·m	---	---	---

Nó 203 [+0; +1250; +2438] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
415: CHSH 48.3x3.2 476: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
471: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,014 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,3%	Sim
		N_{Ed} = 0,7 kN	N_{Rd} = 20,0 kN	3,4%	Sim
		$M_{x,Ed}$ = 0,063 kN·m	---	---	---
		$M_{y,Ed}$ = 0,035 kN·m	---	---	---
475: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,017 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,5%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	3,0%	Sim
		$M_{x,Ed}$ = 0,047 kN·m	---	---	---
		$M_{y,Ed}$ = 0,129 kN·m	---	---	---

Nó 204 [+109; +1250; +2438] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
417: CHSH 48.3x3.2 478: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
473: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,007 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,1%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,5%	Sim
		N_{Ed} = 0,7 kN	N_{Rd} = 20,0 kN	3,6%	Sim
		$M_{x,Ed}$ = 0,061 kN·m	---	---	---
		$M_{y,Ed}$ = 0,032 kN·m	---	---	---
477: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,012 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,5%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	3,1%	Sim
		$M_{x,Ed}$ = 0,047 kN·m	---	---	---
		$M_{y,Ed}$ = 0,128 kN·m	---	---	---

Nó 205 [+0; +1250; +2645] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
420: CHSH 48.3x3.2 480: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,1%	Sim
Travessas / longarinas					
475: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,014 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,5%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	3,0%	Sim
		$M_{x,Ed}$ = 0,047 kN·m	---	---	---
		$M_{y,Ed}$ = 0,132 kN·m	---	---	---
479: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,009 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,6%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	3,2%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,6%	Sim
		$M_{x,Ed}$ = 0,019 kN·m	---	---	---
		$M_{y,Ed}$ = 0,045 kN·m	---	---	---

Nó 206 [+109; +1250; +2645] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
423: CHSH 48.3x3.2 482: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,1%	Sim
Travessas / longarinas					
477: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,006 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,5%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	3,1%	Sim
		$M_{x,Ed}$ = 0,047 kN·m	---	---	---
		$M_{v,Ed}$ = 0,135 kN·m	---	---	---
481: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,005 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,8%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	3,0%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,5%	Sim
		$M_{x,Ed}$ = 0,018 kN·m	---	---	---
		$M_{y,Ed}$ = 0,047 kN·m	---	---	---

Nó 207 [+0; +1250; +2754] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
429: CHSH 48.3x3.2 484: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
479: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,010 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,7%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	3,2%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,6%	Sim
		$M_{x,Ed}$ = 0,019 kN·m	---	---	---
		$M_{y,Ed}$ = 0,215 kN·m	---	---	---
483: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,025 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,1%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	8,3%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,3%	Sim
		$M_{x,Ed}$ = 0,006 kN·m	---	---	---
		$M_{y,Ed}$ = 0,227	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		kN·m			

Nó 208 [+109; +1250; +2754] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
431: CHSH 48.3x3.2 485: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,1%	Sim
Travessas / longarinas					
481: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,004 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,7%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	3,0%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,5%	Sim
		$M_{x,Ed}$ = 0,018 kN·m	---	---	---
		$M_{y,Ed}$ = 0,209 kN·m	---	---	---
483: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,024 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	8,3%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,3%	Sim
		$M_{x,Ed}$ = 0,006 kN·m	---	---	---
		$M_{y,Ed}$ = 0,227 kN·m	---	---	---

Nó 209 [+0; +1300; -36] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
436: CHSH 48.3x3.2 488: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,5 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,7%	Sim
Travessas / longarinas					
486: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,224 kN·m	$M_{z,Rd}$ = 0,600 kN·m	37,4%	Sim
		$V_{y,Ed}$ = 0,4 kN	$V_{y,Rd}$ = 15,0 kN	2,9%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	7,2%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,3%	Sim
		$M_{x,Ed}$ = 0,005 kN·m	---	---	---
		$M_{y,Ed}$ = 0,196 kN·m	---	---	---
487: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,011 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,8%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,7%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,1%	Sim
		$M_{x,Ed}$ = 0,025 kN·m	---	---	---
		$M_{y,Ed}$ = 0,188 kN·m	---	---	---

Nó 210 [+109; +1300; -36] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
438: CHSH 48.3x3.2 490: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,5 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,7%	Sim
Travessas / longarinas					
486: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,222 kN·m	$M_{z,Rd}$ = 0,600 kN·m	36,9%	Sim
		$V_{y,Ed}$ = 0,4 kN	$V_{y,Rd}$ = 15,0 kN	2,8%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	7,2%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,3%	Sim
		$M_{x,Ed}$ = 0,005 kN·m	---	---	---
		$M_{y,Ed}$ = 0,195 kN·m	---	---	---
489: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,003 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,5%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,3%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,2%	Sim
		$M_{x,Ed}$ = 0,021 kN·m	---	---	---
		$M_{y,Ed}$ = 0,181 kN·m	---	---	---

Nó 211 [+0; +1300; +73] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
440: CHSH 48.3x3.2 492: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
487: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,007 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,2%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,7%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,1%	Sim
		$M_{x,Ed}$ = 0,025 kN·m	---	---	---
		$M_{y,Ed}$ = 0,042 kN·m	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
491: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,021 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,8%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,4%	Sim
		$M_{x,Ed}$ = 0,017 kN·m	---	---	---
		$M_{y,Ed}$ = 0,111 kN·m	---	---	---

Nó 212 [+109; +1300; +73] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
442: CHSH 48.3x3.2 494: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
489: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,005 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,8%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,3%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,2%	Sim
		$M_{x,Ed}$ = 0,021 kN·m	---	---	---
		$M_{y,Ed}$ = 0,056 kN·m	---	---	---
493: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,018 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,8%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,6%	Sim
		$M_{x,Ed}$ = 0,017 kN·m	---	---	---
		$M_{y,Ed}$ = 0,108 kN·m	---	---	---

Nó 213 [+0; +1300; +330] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
444: CHSH 48.3x3.2 496: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
491: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,018 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,8%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,4%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$M_{x,Ed}$ = 0,017 kN·m	---	---	---
		$M_{y,Ed}$ = 0,124 kN·m	---	---	---
495: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,029 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,2%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,6%	Sim
		$M_{x,Ed}$ = 0,007 kN·m	---	---	---
		$M_{y,Ed}$ = 0,058 kN·m	---	---	---

Nó 214 [+109; +1300; +330] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
446: CHSH 48.3x3.2 498: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
493: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,012 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,1%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,8%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,6%	Sim
		$M_{x,Ed}$ = 0,017 kN·m	---	---	---
		$M_{y,Ed}$ = 0,120 kN·m	---	---	---
497: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,024 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,2%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	2,8%	Sim
		$M_{x,Ed}$ = 0,005 kN·m	---	---	---
		$M_{y,Ed}$ = 0,058 kN·m	---	---	---

Nó 215 [+0; +1300; +637] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
448: CHSH 48.3x3.2 500: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
495: CHSH	Acero Tub T02	$M_{z,Ed}$ = 0,026	$M_{z,Rd}$ = 0,600	4,3%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
48.3x3.2		kN·m	kN·m		
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,2%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,6%	Sim
		$M_{x,Ed}$ = 0,007 kN·m	---	---	---
		$M_{y,Ed}$ = 0,087 kN·m	---	---	---
499: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,023 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,7%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,7%	Sim
		$M_{x,Ed}$ = 0,035 kN·m	---	---	---
		$M_{y,Ed}$ = 0,131 kN·m	---	---	---

Nó 216 [+109; +1300; +637] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
450: CHSH 48.3x3.2 502: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
497: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,022 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,2%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	2,8%	Sim
		$M_{x,Ed}$ = 0,005 kN·m	---	---	---
		$M_{y,Ed}$ = 0,093 kN·m	---	---	---
501: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,019 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,1%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,8%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	3,0%	Sim
		$M_{x,Ed}$ = 0,037 kN·m	---	---	---
		$M_{y,Ed}$ = 0,128 kN·m	---	---	---

Nó 217 [+0; +1300; +894] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
452: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
504: CHSH 48.3x3.2					
Travessas / longarinas					
499: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,019 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,7%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,7%	Sim
		$M_{x,Ed}$ = 0,035 kN·m	---	---	---
		$M_{y,Ed}$ = 0,044 kN·m	---	---	---
503: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,028 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,1%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	2,8%	Sim
		$M_{x,Ed}$ = 0,045 kN·m	---	---	---
		$M_{y,Ed}$ = 0,197 kN·m	---	---	---

Nó 218 [+109; +1300; +894] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
454: CHSH 48.3x3.2 506: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
501: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,014 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,8%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	3,0%	Sim
		$M_{x,Ed}$ = 0,037 kN·m	---	---	---
		$M_{y,Ed}$ = 0,037 kN·m	---	---	---
505: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,026 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,1%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	3,0%	Sim
		$M_{x,Ed}$ = 0,046 kN·m	---	---	---
		$M_{y,Ed}$ = 0,198 kN·m	---	---	---

Nó 219 [+0; +1300; +1201] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
456: CHSH 48.3x3.2 508: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,3%	Sim
Travessas / longarinas					
503: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,026 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,1%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	2,8%	Sim
		$M_{x,Ed}$ = 0,045 kN·m	---	---	---
		$M_{y,Ed}$ = 0,434 kN·m	---	---	---
507: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,057 kN·m	$M_{z,Rd}$ = 0,600 kN·m	9,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,7%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,5%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	3,2%	Sim
		$M_{x,Ed}$ = 0,030 kN·m	---	---	---
		$M_{y,Ed}$ = 0,456 kN·m	---	---	---

Nó 220 [+109; +1300; +1201] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
458: CHSH 48.3x3.2 510: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,3%	Sim
Travessas / longarinas					
505: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,022 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,1%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	3,0%	Sim
		$M_{x,Ed}$ = 0,046 kN·m	---	---	---
		$M_{y,Ed}$ = 0,426 kN·m	---	---	---
509: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,040 kN·m	$M_{z,Rd}$ = 0,600 kN·m	6,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,6%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	3,2%	Sim
		$M_{x,Ed}$ = 0,031 kN·m	---	---	---
		$M_{y,Ed}$ = 0,462 kN·m	---	---	---

Nó 221 [+0; +1300; +1508] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
460: CHSH 48.3x3.2 512: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
507: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,015 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,5%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	3,2%	Sim
		$M_{x,Ed}$ = 0,030 kN·m	---	---	---
		$M_{v,Ed}$ = 0,237 kN·m	---	---	---
511: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,021 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,9%	Sim
		N_{Ed} = 0,7 kN	N_{Rd} = 20,0 kN	3,4%	Sim
		$M_{x,Ed}$ = 0,033 kN·m	---	---	---
		$M_{y,Ed}$ = 0,036 kN·m	---	---	---

Nó 222 [+109; +1300; +1508] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
462: CHSH 48.3x3.2 514: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
509: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,012 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,6%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	3,2%	Sim
		$M_{x,Ed}$ = 0,031 kN·m	---	---	---
		$M_{y,Ed}$ = 0,238 kN·m	---	---	---
513: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,024 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,8%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	3,2%	Sim
		$M_{x,Ed}$ = 0,034 kN·m	---	---	---
		$M_{y,Ed}$ = 0,040	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		kN·m			

Nó 223 [+0; +1300; +1815] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
464: CHSH 48.3x3.2 516: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
511: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,036 kN·m	$M_{z,Rd}$ = 0,600 kN·m	6,1%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,9%	Sim
		N_{Ed} = 0,7 kN	N_{Rd} = 20,0 kN	3,4%	Sim
		$M_{x,Ed}$ = 0,033 kN·m	---	---	---
		$M_{y,Ed}$ = 0,168 kN·m	---	---	---
515: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,021 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,7%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	3,2%	Sim
		$M_{x,Ed}$ = 0,007 kN·m	---	---	---
		$M_{y,Ed}$ = 0,115 kN·m	---	---	---

Nó 224 [+109; +1300; +1815] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
466: CHSH 48.3x3.2 518: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
513: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,022 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,8%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	3,2%	Sim
		$M_{x,Ed}$ = 0,034 kN·m	---	---	---
		$M_{y,Ed}$ = 0,162 kN·m	---	---	---
517: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,022 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,7%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	3,2%	Sim
		$M_{x,Ed}$ = 0,008 kN·m	---	---	---
		$M_{y,Ed}$ = 0,115 kN·m	---	---	---

Nó 225 [+0; +1300; +2122] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
468: CHSH 48.3x3.2 520: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
515: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,035 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,7%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	3,2%	Sim
		$M_{x,Ed}$ = 0,007 kN·m	---	---	---
		$M_{y,Ed}$ = 0,004 kN·m	---	---	---
519: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,018 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,1%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	2,9%	Sim
		$M_{x,Ed}$ = 0,018 kN·m	---	---	---
		$M_{y,Ed}$ = 0,041 kN·m	---	---	---

Nó 226 [+109; +1300; +2122] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
470: CHSH 48.3x3.2 522: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
517: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,025 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,7%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	3,2%	Sim
		$M_{x,Ed}$ = 0,008 kN·m	---	---	---
		$M_{y,Ed}$ = 0,011 kN·m	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
521: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,003 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,5%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,1%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,7%	Sim
		$M_{x,Ed}$ = 0,025 kN·m	---	---	---
		$M_{y,Ed}$ = 0,022 kN·m	---	---	---

Nó 227 [+0; +1300; +2231] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
472: CHSH 48.3x3.2 524: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
519: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,023 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,1%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	2,9%	Sim
		$M_{x,Ed}$ = 0,018 kN·m	---	---	---
		$M_{y,Ed}$ = 0,035 kN·m	---	---	---
523: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,022 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,6%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	2,8%	Sim
		$M_{x,Ed}$ = 0,043 kN·m	---	---	---
		$M_{y,Ed}$ = 0,082 kN·m	---	---	---

Nó 228 [+109; +1300; +2231] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
474: CHSH 48.3x3.2 526: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,1%	Sim
Travessas / longarinas					
521: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,005 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,8%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,1%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,7%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$M_{x,Ed}$ = 0,025 kN·m	---	---	---
		$M_{y,Ed}$ = 0,026 kN·m	---	---	---
525: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,014 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,6%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,5%	Sim
		$M_{x,Ed}$ = 0,042 kN·m	---	---	---
		$M_{y,Ed}$ = 0,089 kN·m	---	---	---

Nó 229 [+0; +1300; +2438] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
476: CHSH 48.3x3.2 528: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
523: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,015 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,6%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	2,8%	Sim
		$M_{x,Ed}$ = 0,043 kN·m	---	---	---
		$M_{y,Ed}$ = 0,025 kN·m	---	---	---
527: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,019 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,5%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,7%	Sim
		$M_{x,Ed}$ = 0,040 kN·m	---	---	---
		$M_{y,Ed}$ = 0,123 kN·m	---	---	---

Nó 230 [+109; +1300; +2438] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
478: CHSH 48.3x3.2 530: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
525: CHSH	Acero Tub T02	$M_{z,Ed}$ = 0,010	$M_{z,Rd}$ = 0,600	1,7%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
48.3x3.2		kN·m	kN·m		
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,6%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,5%	Sim
		$M_{x,Ed}$ = 0,042 kN·m	---	---	---
		$M_{y,Ed}$ = 0,026 kN·m	---	---	---
529: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,015 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,5%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,3%	Sim
		$M_{x,Ed}$ = 0,040 kN·m	---	---	---
		$M_{y,Ed}$ = 0,121 kN·m	---	---	---

Nó 231 [+0; +1300; +2645] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
480: CHSH 48.3x3.2 532: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,1%	Sim
Travessas / longarinas					
527: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,016 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,5%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,7%	Sim
		$M_{x,Ed}$ = 0,040 kN·m	---	---	---
		$M_{y,Ed}$ = 0,137 kN·m	---	---	---
531: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,012 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,0%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	3,0%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,4%	Sim
		$M_{x,Ed}$ = 0,024 kN·m	---	---	---
		$M_{y,Ed}$ = 0,064 kN·m	---	---	---

Nó 232 [+109; +1300; +2645] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
482: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,1%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
534: CHSH 48.3x3.2					
Travessas / longarinas					
529: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,011 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,5%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,3%	Sim
		$M_{x,Ed}$ = 0,040 kN·m	---	---	---
		$M_{y,Ed}$ = 0,139 kN·m	---	---	---
533: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,004 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,6%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	3,0%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,2%	Sim
		$M_{x,Ed}$ = 0,025 kN·m	---	---	---
		$M_{y,Ed}$ = 0,061 kN·m	---	---	---

Nó 233 [+0; +1300; +2754] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
484: CHSH 48.3x3.2 536: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
531: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,013 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,1%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	3,0%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,4%	Sim
		$M_{x,Ed}$ = 0,024 kN·m	---	---	---
		$M_{y,Ed}$ = 0,223 kN·m	---	---	---
535: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,013 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	8,5%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,1%	Sim
		$M_{x,Ed}$ = 0,011 kN·m	---	---	---
		$M_{y,Ed}$ = 0,233 kN·m	---	---	---

Nó 234 [+109; +1300; +2754] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
485: CHSH 48.3x3.2 537: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,1%	Sim
Travessas / longarinas					
533: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,004 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,6%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	3,0%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,2%	Sim
		$M_{x,Ed}$ = 0,025 kN·m	---	---	---
		$M_{y,Ed}$ = 0,223 kN·m	---	---	---
535: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,011 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,8%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	8,5%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,1%	Sim
		$M_{x,Ed}$ = 0,011 kN·m	---	---	---
		$M_{y,Ed}$ = 0,233 kN·m	---	---	---

Nó 235 [+0; +1400; -36] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
488: CHSH 48.3x3.2 540: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,3%	Sim
Travessas / longarinas					
538: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,013 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,2%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,5 kN	$V_{z,Rd}$ = 5,0 kN	9,6%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,7%	Sim
		$M_{x,Ed}$ = 0,004 kN·m	---	---	---
		$M_{y,Ed}$ = 0,257 kN·m	---	---	---
539: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,011 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,9%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	8,3%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	1,9%	Sim
		$M_{x,Ed}$ = 0,005 kN·m	---	---	---
		$M_{y,Ed}$ = 0,280 kN·m	---	---	---

Nó 236 [+109; +1400; -36] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
490: CHSH 48.3x3.2 542: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 1,4 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	2,1%	Sim
Travessas / longarinas					
538: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,007 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,1%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,5 kN	$V_{z,Rd}$ = 5,0 kN	9,6%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,7%	Sim
		$M_{x,Ed}$ = 0,004 kN·m	---	---	---
		$M_{v,Ed}$ = 0,264 kN·m	---	---	---
541: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,008 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,9%	Sim
		$V_{z,Ed}$ = 0,5 kN	$V_{z,Rd}$ = 5,0 kN	10,8%	Sim
		N_{Ed} = 0,9 kN	N_{Rd} = 20,0 kN	4,4%	Sim
		$M_{x,Ed}$ = 0,013 kN·m	---	---	---
		$M_{y,Ed}$ = 0,276 kN·m	---	---	---
Diagonais					
543: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 1,4 kN	$N_{c,Rd}$ = 7,0 kN	19,8%	Sim
		$N_{t,Ed}$ = 0,0 kN	$N_{t,Rd}$ = 7,0 kN	0,0%	Sim
		$V_{y,Ed}$ = 0,0 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,068 kN·m	---	---	---
		$M_{v,Ed}$ = 0,090 kN·m	---	---	---
		$M_{z,Ed}$ = 0,013 kN·m	---	---	---

Nó 237 [+0; +1400; +73] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
492: CHSH 48.3x3.2 546: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,4 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,7%	Sim
Travessas / longarinas					
539: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,005 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,8%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	8,3%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	1,9%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$M_{x,Ed}$ = 0,005 kN·m	---	---	---
		$M_{y,Ed}$ = 0,175 kN·m	---	---	---
544: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,014 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,3%	Sim
		$V_{y,Ed}$ = 0,2 kN	$V_{y,Rd}$ = 15,0 kN	1,6%	Sim
		$V_{z,Ed}$ = 1,1 kN	$V_{z,Rd}$ = 5,0 kN	22,6%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,2%	Sim
		$M_{x,Ed}$ = 0,005 kN·m	---	---	---
		$M_{y,Ed}$ = 0,599 kN·m	---	---	---
545: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,017 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,6%	Sim
		N_{Ed} = 1,4 kN	N_{Rd} = 20,0 kN	7,0%	Sim
		$M_{x,Ed}$ = 0,002 kN·m	---	---	---
		$M_{y,Ed}$ = 0,286 kN·m	---	---	---

Nó 238 [+109; +1400; +73] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
494: CHSH 48.3x3.2 548: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 1,9 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	3,0%	Sim
Travessas / longarinas					
541: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,007 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,8%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,7%	Sim
		N_{Ed} = 0,9 kN	N_{Rd} = 20,0 kN	4,4%	Sim
		$M_{x,Ed}$ = 0,013 kN·m	---	---	---
		$M_{y,Ed}$ = 0,063 kN·m	---	---	---
544: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,025 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,2%	Sim
		$V_{y,Ed}$ = 0,2 kN	$V_{y,Rd}$ = 15,0 kN	1,6%	Sim
		$V_{z,Ed}$ = 1,1 kN	$V_{z,Rd}$ = 5,0 kN	22,6%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,2%	Sim
		$M_{x,Ed}$ = 0,005 kN·m	---	---	---
		$M_{y,Ed}$ = 0,631 kN·m	---	---	---
547: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,022 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,7 kN	$V_{z,Rd}$ = 5,0 kN	14,8%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		N_{Ed} = 1,8 kN	N_{Rd} = 20,0 kN	9,1%	Sim
		$M_{x,Ed}$ = 0,002 kN·m	---	---	---
		$M_{y,Ed}$ = 0,480 kN·m	---	---	---
Diagonais					
361: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 2,7 kN	$N_{c,Rd}$ = 7,0 kN	38,3%	Sim
		$N_{t,Ed}$ = 0,0 kN	$N_{t,Rd}$ = 7,0 kN	0,0%	Sim
		$V_{y,Ed}$ = 0,0 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,068 kN·m	---	---	---
		$M_{y,Ed}$ = 0,091 kN·m	---	---	---
		$M_{z,Ed}$ = 0,010 kN·m	---	---	---

Nó 239 [+0; +1400; +330] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
496: CHSH 48.3x3.2 551: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,6 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	1,0%	Sim
Travessas / longarinas					
545: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,014 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,6%	Sim
		N_{Ed} = 1,4 kN	N_{Rd} = 20,0 kN	7,0%	Sim
		$M_{x,Ed}$ = 0,002 kN·m	---	---	---
		$M_{y,Ed}$ = 0,305 kN·m	---	---	---
549: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,030 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,0%	Sim
		$V_{y,Ed}$ = 0,5 kN	$V_{y,Rd}$ = 15,0 kN	3,3%	Sim
		$V_{z,Ed}$ = 0,9 kN	$V_{z,Rd}$ = 5,0 kN	17,2%	Sim
		N_{Ed} = 0,7 kN	N_{Rd} = 20,0 kN	3,3%	Sim
		$M_{x,Ed}$ = 0,004 kN·m	---	---	---
		$M_{y,Ed}$ = 0,459 kN·m	---	---	---
550: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,024 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,6%	Sim
		N_{Ed} = 2,2 kN	N_{Rd} = 20,0 kN	10,9%	Sim
		$M_{x,Ed}$ = 0,003 kN·m	---	---	---
		$M_{y,Ed}$ = 0,005 kN·m	---	---	---

Nó 240 [+109; +1400; +330] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
498: CHSH 48.3x3.2 553: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 1,7 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	2,6%	Sim
Travessas / longarinas					
547: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,015 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	7,2%	Sim
		N_{Ed} = 1,8 kN	N_{Rd} = 20,0 kN	9,1%	Sim
		$M_{x,Ed}$ = 0,002 kN·m	---	---	---
		$M_{v,Ed}$ = 0,045 kN·m	---	---	---
549: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,036 kN·m	$M_{z,Rd}$ = 0,600 kN·m	6,0%	Sim
		$V_{y,Ed}$ = 0,5 kN	$V_{y,Rd}$ = 15,0 kN	3,3%	Sim
		$V_{z,Ed}$ = 0,9 kN	$V_{z,Rd}$ = 5,0 kN	17,2%	Sim
		N_{Ed} = 0,7 kN	N_{Rd} = 20,0 kN	3,3%	Sim
		$M_{x,Ed}$ = 0,004 kN·m	---	---	---
		$M_{y,Ed}$ = 0,479 kN·m	---	---	---
552: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,025 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,1%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,7 kN	$V_{z,Rd}$ = 5,0 kN	13,4%	Sim
		N_{Ed} = 3,8 kN	N_{Rd} = 20,0 kN	18,8%	Sim
		$M_{x,Ed}$ = 0,008 kN·m	---	---	---
		$M_{y,Ed}$ = 0,327 kN·m	---	---	---
Diagonais					
377: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 0,0 kN	$N_{c,Rd}$ = 7,0 kN	0,0%	Sim
		$N_{t,Ed}$ = 1,8 kN	$N_{t,Rd}$ = 7,0 kN	26,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,053 kN·m	---	---	---
		$M_{v,Ed}$ = 0,062 kN·m	---	---	---
		$M_{z,Ed}$ = 0,038 kN·m	---	---	---

Nó 241 [+0; +1400; +637] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
500: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,6 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	1,0%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
556: CHSH 48.3x3.2					
Travessas / longarinas					
550: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,021 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,6%	Sim
		N_{Ed} = 2,2 kN	N_{Rd} = 20,0 kN	10,9%	Sim
		$M_{x,Ed}$ = 0,003 kN·m	---	---	---
		$M_{y,Ed}$ = 0,089 kN·m	---	---	---
554: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,034 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,6%	Sim
		$V_{y,Ed}$ = 0,5 kN	$V_{y,Rd}$ = 15,0 kN	3,3%	Sim
		$V_{z,Ed}$ = 0,6 kN	$V_{z,Rd}$ = 5,0 kN	11,1%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	3,2%	Sim
		$M_{x,Ed}$ = 0,004 kN·m	---	---	---
		$M_{y,Ed}$ = 0,291 kN·m	---	---	---
555: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,017 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,1%	Sim
		N_{Ed} = 1,6 kN	N_{Rd} = 20,0 kN	8,1%	Sim
		$M_{x,Ed}$ = 0,002 kN·m	---	---	---
		$M_{y,Ed}$ = 0,310 kN·m	---	---	---

Nó 242 [+109; +1400; +637] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
502: CHSH 48.3x3.2 558: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,4 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,6%	Sim
Travessas / longarinas					
552: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,021 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,6 kN	$V_{z,Rd}$ = 5,0 kN	12,3%	Sim
		N_{Ed} = 3,8 kN	N_{Rd} = 20,0 kN	18,8%	Sim
		$M_{x,Ed}$ = 0,008 kN·m	---	---	---
		$M_{y,Ed}$ = 0,239 kN·m	---	---	---
554: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,044 kN·m	$M_{z,Rd}$ = 0,600 kN·m	7,4%	Sim
		$V_{y,Ed}$ = 0,5 kN	$V_{y,Rd}$ = 15,0 kN	3,3%	Sim
		$V_{z,Ed}$ = 0,6 kN	$V_{z,Rd}$ = 5,0 kN	11,1%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	3,2%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$M_{x,Ed}$ = 0,004 kN·m	---	---	---
		$M_{y,Ed}$ = 0,312 kN·m	---	---	---
557: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,021 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	7,2%	Sim
		N_{Ed} = 2,6 kN	N_{Rd} = 20,0 kN	12,9%	Sim
		$M_{x,Ed}$ = 0,006 kN·m	---	---	---
		$M_{y,Ed}$ = 0,069 kN·m	---	---	---
Diagonais					
559: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 0,0 kN	$N_{c,Rd}$ = 7,0 kN	0,0%	Sim
		$N_{t,Ed}$ = 0,8 kN	$N_{t,Rd}$ = 7,0 kN	11,1%	Sim
		$V_{y,Ed}$ = 0,1 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,042 kN·m	---	---	---
		$M_{y,Ed}$ = 0,082 kN·m	---	---	---
		$M_{z,Ed}$ = 0,036 kN·m	---	---	---

Nó 243 [+0; +1400; +894] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
504: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,6 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	1,0%	Sim
562: CHSH 48.3x3.2					
Travessas / longarinas					
555: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,014 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,1%	Sim
		N_{Ed} = 1,6 kN	N_{Rd} = 20,0 kN	8,1%	Sim
		$M_{x,Ed}$ = 0,002 kN·m	---	---	---
		$M_{y,Ed}$ = 0,217 kN·m	---	---	---
560: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,034 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,6%	Sim
		$V_{y,Ed}$ = 0,5 kN	$V_{y,Rd}$ = 15,0 kN	3,2%	Sim
		$V_{z,Ed}$ = 1,6 kN	$V_{z,Rd}$ = 5,0 kN	32,9%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	2,8%	Sim
		$M_{x,Ed}$ = 0,002 kN·m	---	---	---
		$M_{y,Ed}$ = 0,905 kN·m	---	---	---
561: CHSH	Acero Tub T02	$M_{z,Ed}$ = 0,024 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,0%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
48.3x3.2		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 5,0 kN	6,2%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,2%	Sim
		$M_{x,Ed}$ = 0,006 kN·m	---	---	---
		$M_{y,Ed}$ = 0,410 kN·m	---	---	---

Nó 244 [+109; +1400; +894] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
506: CHSH 48.3x3.2 564: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 1,9 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	2,9%	Sim
Travessas / longarinas					
557: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,015 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,7 kN	$V_{z,Rd}$ = 5,0 kN	14,8%	Sim
		N_{Ed} = 2,6 kN	N_{Rd} = 20,0 kN	12,9%	Sim
		$M_{x,Ed}$ = 0,006 kN·m	---	---	---
		$M_{y,Ed}$ = 0,453 kN·m	---	---	---
560: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,026 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,4%	Sim
		$V_{y,Ed}$ = 0,5 kN	$V_{y,Rd}$ = 15,0 kN	3,2%	Sim
		$V_{z,Ed}$ = 1,6 kN	$V_{z,Rd}$ = 5,0 kN	32,9%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	2,8%	Sim
		$M_{x,Ed}$ = 0,002 kN·m	---	---	---
		$M_{y,Ed}$ = 0,888 kN·m	---	---	---
563: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,024 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	7,4%	Sim
		N_{Ed} = 2,7 kN	N_{Rd} = 20,0 kN	13,6%	Sim
		$M_{x,Ed}$ = 0,004 kN·m	---	---	---
		$M_{y,Ed}$ = 0,081 kN·m	---	---	---
Diagonais					
388: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 0,0 kN	$N_{c,Rd}$ = 7,0 kN	0,0%	Sim
		$N_{t,Ed}$ = 2,2 kN	$N_{t,Rd}$ = 7,0 kN	30,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	---	---	---
		$V_{z,Ed}$ = 0,1 kN	---	---	---
		$M_{x,Ed}$ = 0,024 kN·m	---	---	---
		$M_{y,Ed}$ = 0,095 kN·m	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$M_{z,Ed}$ = 0,036 kN·m	---	---	---

Nó 245 [+0; +1400; +1201] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
508: CHSH 48.3x3.2 567: CHSH 48.3x3.2	Acero R01	$\Sigma V_{y,Ed}$ = 7,6 kN	$\Sigma V_{y,Rd}$ = 100,0 kN	7,6%	Sim
Travessas / longarinas					
561: CHSH 48.3x3.2	Acero Tub T01	$M_{z,Ed}$ = 0,022 kN·m	$M_{z,Rd}$ = 1,000 kN·m	2,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 25,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 8,0 kN	3,9%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 30,0 kN	0,1%	Sim
		$M_{x,Ed}$ = 0,006 kN·m	---	---	---
		$M_{y,Ed}$ = 0,545 kN·m	---	---	---
565: CHSH 48.3x3.2	Acero Tub T01	$M_{z,Ed}$ = 0,034 kN·m	$M_{z,Rd}$ = 1,000 kN·m	3,4%	Sim
		$V_{y,Ed}$ = 0,5 kN	$V_{y,Rd}$ = 25,0 kN	2,1%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 8,0 kN	4,3%	Sim
		N_{Ed} = 2,6 kN	N_{Rd} = 30,0 kN	8,5%	Sim
		$M_{x,Ed}$ = 0,004 kN·m	---	---	---
		$M_{y,Ed}$ = 0,203 kN·m	---	---	---
566: CHSH 48.3x3.2	Acero Tub T01	$M_{z,Ed}$ = 0,054 kN·m	$M_{z,Rd}$ = 1,000 kN·m	5,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 25,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 8,0 kN	5,1%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 30,0 kN	1,2%	Sim
		$M_{x,Ed}$ = 0,012 kN·m	---	---	---
		$M_{y,Ed}$ = 0,685 kN·m	---	---	---
Diagonais					
389: CHSH 48.3x2,3	Acero D01	$N_{c,Ed}$ = 9,1 kN	$N_{c,Rd}$ = 15,0 kN	60,4%	Sim
		$N_{t,Ed}$ = 7,8 kN	$N_{t,Rd}$ = 17,0 kN	46,0%	Sim
		$V_{y,Ed}$ = 0,0 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,000 kN·m	---	---	---
		$M_{y,Ed}$ = 0,035 kN·m	---	---	---
		$M_{z,Ed}$ = 0,006 kN·m	---	---	---

Nó 246 [+109; +1400; +1201] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
510: CHSH 48.3x3.2 569: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 2,0 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	3,1%	Sim
Travessas / longarinas					
563: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,022 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,9 kN	$V_{z,Rd}$ = 5,0 kN	18,9%	Sim
		N_{Ed} = 2,7 kN	N_{Rd} = 20,0 kN	13,6%	Sim
		$M_{x,Ed}$ = 0,004 kN·m	---	---	---
		$M_{y,Ed}$ = 0,854 kN·m	---	---	---
565: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,032 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,3%	Sim
		$V_{y,Ed}$ = 0,5 kN	$V_{y,Rd}$ = 15,0 kN	3,5%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 5,0 kN	6,8%	Sim
		N_{Ed} = 2,6 kN	N_{Rd} = 20,0 kN	12,8%	Sim
		$M_{x,Ed}$ = 0,004 kN·m	---	---	---
		$M_{y,Ed}$ = 0,169 kN·m	---	---	---
568: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,038 kN·m	$M_{z,Rd}$ = 0,600 kN·m	6,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 1,1 kN	$V_{z,Rd}$ = 5,0 kN	21,1%	Sim
		N_{Ed} = 2,0 kN	N_{Rd} = 20,0 kN	9,8%	Sim
		$M_{x,Ed}$ = 0,011 kN·m	---	---	---
		$M_{y,Ed}$ = 1,034 kN·m	---	---	---
Diagonais					
570: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 1,0 kN	$N_{c,Rd}$ = 7,0 kN	13,9%	Sim
		$N_{t,Ed}$ = 2,0 kN	$N_{t,Rd}$ = 7,0 kN	28,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	---	---	---
		$V_{z,Ed}$ = 0,1 kN	---	---	---
		$M_{x,Ed}$ = 0,048 kN·m	---	---	---
		$M_{y,Ed}$ = 0,106 kN·m	---	---	---
		$M_{z,Ed}$ = 0,036 kN·m	---	---	---
571: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 2,7 kN	$N_{c,Rd}$ = 7,0 kN	38,8%	Sim
		$N_{t,Ed}$ = 1,5 kN	$N_{t,Rd}$ = 7,0 kN	21,3%	Sim
		$V_{y,Ed}$ = 0,0 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,005 kN·m	---	---	---
		$M_{y,Ed}$ = 0,017 kN·m	---	---	---
		$M_{z,Ed}$ = 0,010 kN·m	---	---	---

Nó 247 [+0; +1400; +1508] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
512: CHSH 48.3x3.2 574: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,7 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	1,0%	Sim
Travessas / longarinas					
566: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,011 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	8,1%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	1,8%	Sim
		$M_{x,Ed}$ = 0,012 kN·m	---	---	---
		$M_{y,Ed}$ = 0,564 kN·m	---	---	---
572: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,041 kN·m	$M_{z,Rd}$ = 0,600 kN·m	6,9%	Sim
		$V_{y,Ed}$ = 0,5 kN	$V_{y,Rd}$ = 15,0 kN	3,4%	Sim
		$V_{z,Ed}$ = 2,3 kN	$V_{z,Rd}$ = 5,0 kN	47,0%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	3,2%	Sim
		$M_{x,Ed}$ = 0,005 kN·m	---	---	---
		$M_{y,Ed}$ = 1,274 kN·m	---	---	---
573: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,016 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,4%	Sim
		N_{Ed} = 2,7 kN	N_{Rd} = 20,0 kN	13,3%	Sim
		$M_{x,Ed}$ = 0,002 kN·m	---	---	---
		$M_{y,Ed}$ = 0,289 kN·m	---	---	---

Nó 248 [+109; +1400; +1508] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
514: CHSH 48.3x3.2 576: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,6 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,9%	Sim
Travessas / longarinas					
568: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,016 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 5,0 kN	5,2%	Sim
		N_{Ed} = 2,0 kN	N_{Rd} = 20,0 kN	9,8%	Sim
		$M_{x,Ed}$ = 0,011 kN·m	---	---	---
		$M_{y,Ed}$ = 0,241	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		kN·m			
572: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,089 kN·m	$M_{z,Rd}$ = 0,600 kN·m	14,8%	Sim
		$V_{y,Ed}$ = 0,6 kN	$V_{y,Rd}$ = 15,0 kN	4,2%	Sim
		$V_{z,Ed}$ = 2,3 kN	$V_{z,Rd}$ = 5,0 kN	47,0%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	3,2%	Sim
		$M_{x,Ed}$ = 0,005 kN·m	---	---	---
		$M_{y,Ed}$ = 1,286 kN·m	---	---	---
575: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,020 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,8 kN	$V_{z,Rd}$ = 5,0 kN	17,0%	Sim
		N_{Ed} = 2,2 kN	N_{Rd} = 20,0 kN	11,0%	Sim
		$M_{x,Ed}$ = 0,002 kN·m	---	---	---
		$M_{y,Ed}$ = 0,600 kN·m	---	---	---
Diagonais					
400: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 2,4 kN	$N_{c,Rd}$ = 7,0 kN	34,6%	Sim
		$N_{t,Ed}$ = 0,0 kN	$N_{t,Rd}$ = 7,0 kN	0,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,040 kN·m	---	---	---
		$M_{y,Ed}$ = 0,015 kN·m	---	---	---
		$M_{z,Ed}$ = 0,031 kN·m	---	---	---

Nó 249 [+0; +1400; +1815] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
516: CHSH 48.3x3.2 579: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,7 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	1,1%	Sim
Travessas / longarinas					
573: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,033 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,4%	Sim
		N_{Ed} = 2,7 kN	N_{Rd} = 20,0 kN	13,3%	Sim
		$M_{x,Ed}$ = 0,002 kN·m	---	---	---
		$M_{y,Ed}$ = 0,390 kN·m	---	---	---
577: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,040 kN·m	$M_{z,Rd}$ = 0,600 kN·m	6,6%	Sim
		$V_{y,Ed}$ = 0,5 kN	$V_{y,Rd}$ = 15,0 kN	3,6%	Sim
		$V_{z,Ed}$ = 0,8 kN	$V_{z,Rd}$ = 5,0 kN	17,0%	Sim
		N_{Ed} = 0,8 kN	N_{Rd} = 20,0 kN	3,8%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$M_{x,Ed}$ = 0,002 kN·m	---	---	---
		$M_{y,Ed}$ = 0,450 kN·m	---	---	---
578: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,019 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,4%	Sim
		N_{Ed} = 3,5 kN	N_{Rd} = 20,0 kN	17,5%	Sim
		$M_{x,Ed}$ = 0,008 kN·m	---	---	---
		$M_{y,Ed}$ = 0,069 kN·m	---	---	---

Nó 250 [+109; +1400; +1815] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
518: CHSH 48.3x3.2 581: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,6 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,9%	Sim
Travessas / longarinas					
575: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,025 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,5 kN	$V_{z,Rd}$ = 5,0 kN	9,2%	Sim
		N_{Ed} = 2,2 kN	N_{Rd} = 20,0 kN	11,0%	Sim
		$M_{x,Ed}$ = 0,002 kN·m	---	---	---
		$M_{y,Ed}$ = 0,040 kN·m	---	---	---
577: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,066 kN·m	$M_{z,Rd}$ = 0,600 kN·m	11,1%	Sim
		$V_{y,Ed}$ = 0,6 kN	$V_{y,Rd}$ = 15,0 kN	3,9%	Sim
		$V_{z,Ed}$ = 0,8 kN	$V_{z,Rd}$ = 5,0 kN	17,0%	Sim
		N_{Ed} = 0,8 kN	N_{Rd} = 20,0 kN	3,8%	Sim
		$M_{x,Ed}$ = 0,002 kN·m	---	---	---
		$M_{y,Ed}$ = 0,474 kN·m	---	---	---
580: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,019 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,6 kN	$V_{z,Rd}$ = 5,0 kN	12,9%	Sim
		N_{Ed} = 4,3 kN	N_{Rd} = 20,0 kN	21,7%	Sim
		$M_{x,Ed}$ = 0,006 kN·m	---	---	---
		$M_{y,Ed}$ = 0,285 kN·m	---	---	---
Diagonais					
406: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 6,7 kN	$N_{c,Rd}$ = 7,0 kN	95,4%	Sim
		$N_{t,Ed}$ = 0,0 kN	$N_{t,Rd}$ = 7,0 kN	0,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,050 kN·m	---	---	---
		$M_{y,Ed}$ = 0,084 kN·m	---	---	---
		$M_{z,Ed}$ = 0,033 kN·m	---	---	---
582: CHSH 48.3x2,3	Acero D01	$N_{c,Ed}$ = 4,1 kN	$N_{c,Rd}$ = 8,0 kN	51,2%	Sim
		$N_{t,Ed}$ = 0,0 kN	$N_{t,Rd}$ = 8,0 kN	0,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	---	---	---
		$V_{z,Ed}$ = 0,1 kN	---	---	---
		$M_{x,Ed}$ = 0,027 kN·m	---	---	---
		$M_{y,Ed}$ = 0,134 kN·m	---	---	---
		$M_{z,Ed}$ = 0,042 kN·m	---	---	---

Nó 251 [+0; +1400; +2122] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
520: CHSH 48.3x3.2 585: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,5 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,8%	Sim
Travessas / longarinas					
578: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,035 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,4%	Sim
		N_{Ed} = 3,5 kN	N_{Rd} = 20,0 kN	17,5%	Sim
		$M_{x,Ed}$ = 0,008 kN·m	---	---	---
		$M_{y,Ed}$ = 0,012 kN·m	---	---	---
583: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,032 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,4%	Sim
		$V_{y,Ed}$ = 0,4 kN	$V_{y,Rd}$ = 15,0 kN	2,7%	Sim
		$V_{z,Ed}$ = 0,5 kN	$V_{z,Rd}$ = 5,0 kN	10,5%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,4%	Sim
		$M_{x,Ed}$ = 0,002 kN·m	---	---	---
		$M_{y,Ed}$ = 0,251 kN·m	---	---	---
584: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,007 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,2%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 5,0 kN	5,7%	Sim
		N_{Ed} = 3,1 kN	N_{Rd} = 20,0 kN	15,6%	Sim
		$M_{x,Ed}$ = 0,002 kN·m	---	---	---
		$M_{y,Ed}$ = 0,201 kN·m	---	---	---

Nó 252 [+109; +1400; +2122] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
522: CHSH 48.3x3.2 587: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,9 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	1,4%	Sim
Travessas / longarinas					
580: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,027 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,6 kN	$V_{z,Rd}$ = 5,0 kN	12,9%	Sim
		N_{Ed} = 4,3 kN	N_{Rd} = 20,0 kN	21,7%	Sim
		$M_{x,Ed}$ = 0,006 kN·m	---	---	---
		$M_{v,Ed}$ = 0,282 kN·m	---	---	---
583: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,036 kN·m	$M_{z,Rd}$ = 0,600 kN·m	6,1%	Sim
		$V_{y,Ed}$ = 0,4 kN	$V_{y,Rd}$ = 15,0 kN	2,6%	Sim
		$V_{z,Ed}$ = 0,5 kN	$V_{z,Rd}$ = 5,0 kN	10,5%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,4%	Sim
		$M_{x,Ed}$ = 0,002 kN·m	---	---	---
		$M_{y,Ed}$ = 0,321 kN·m	---	---	---
586: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,002 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,3%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,4%	Sim
		N_{Ed} = 3,1 kN	N_{Rd} = 20,0 kN	15,7%	Sim
		$M_{x,Ed}$ = 0,018 kN·m	---	---	---
		$M_{y,Ed}$ = 0,059 kN·m	---	---	---
Diagonais					
588: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 0,0 kN	$N_{c,Rd}$ = 7,0 kN	0,0%	Sim
		$N_{t,Ed}$ = 1,5 kN	$N_{t,Rd}$ = 7,0 kN	21,8%	Sim
		$V_{y,Ed}$ = 0,0 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,059 kN·m	---	---	---
		$M_{v,Ed}$ = 0,101 kN·m	---	---	---
		$M_{z,Ed}$ = 0,009 kN·m	---	---	---

Nó 253 [+0; +1400; +2231] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
524: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,4 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,6%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
591: CHSH 48.3x3.2					
Travessas / longarinas					
584: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,011 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,9%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 5,0 kN	5,7%	Sim
		N_{Ed} = 3,1 kN	N_{Rd} = 20,0 kN	15,6%	Sim
		$M_{x,Ed}$ = 0,002 kN·m	---	---	---
		$M_{y,Ed}$ = 0,108 kN·m	---	---	---
589: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,022 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,6%	Sim
		$V_{y,Ed}$ = 0,3 kN	$V_{y,Rd}$ = 15,0 kN	2,0%	Sim
		$V_{z,Ed}$ = 0,7 kN	$V_{z,Rd}$ = 5,0 kN	14,4%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,5%	Sim
		$M_{x,Ed}$ = 0,002 kN·m	---	---	---
		$M_{y,Ed}$ = 0,412 kN·m	---	---	---
590: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,013 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,4%	Sim
		N_{Ed} = 2,5 kN	N_{Rd} = 20,0 kN	12,7%	Sim
		$M_{x,Ed}$ = 0,002 kN·m	---	---	---
		$M_{y,Ed}$ = 0,252 kN·m	---	---	---

Nó 254 [+109; +1400; +2231] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
526: CHSH 48.3x3.2 593: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 1,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	1,7%	Sim
Travessas / longarinas					
586: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,005 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,8%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	8,5%	Sim
		N_{Ed} = 3,1 kN	N_{Rd} = 20,0 kN	15,7%	Sim
		$M_{x,Ed}$ = 0,018 kN·m	---	---	---
		$M_{y,Ed}$ = 0,157 kN·m	---	---	---
589: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,017 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,9%	Sim
		$V_{y,Ed}$ = 0,3 kN	$V_{y,Rd}$ = 15,0 kN	1,9%	Sim
		$V_{z,Ed}$ = 0,7 kN	$V_{z,Rd}$ = 5,0 kN	14,4%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,5%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$M_{x,Ed}$ = 0,002 kN·m	---	---	---
		$M_{y,Ed}$ = 0,373 kN·m	---	---	---
592: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,012 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,4%	Sim
		N_{Ed} = 2,8 kN	N_{Rd} = 20,0 kN	14,0%	Sim
		$M_{x,Ed}$ = 0,006 kN·m	---	---	---
		$M_{y,Ed}$ = 0,140 kN·m	---	---	---
Diagonais					
407: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 1,3 kN	$N_{c,Rd}$ = 7,0 kN	18,1%	Sim
		$N_{t,Ed}$ = 0,9 kN	$N_{t,Rd}$ = 7,0 kN	12,2%	Sim
		$V_{y,Ed}$ = 0,0 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,046 kN·m	---	---	---
		$M_{y,Ed}$ = 0,094 kN·m	---	---	---
		$M_{z,Ed}$ = 0,011 kN·m	---	---	---

Nó 255 [+0; +1400; +2438] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
528: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,5 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,7%	Sim
596: CHSH 48.3x3.2					
Travessas / longarinas					
590: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,007 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,4%	Sim
		N_{Ed} = 2,5 kN	N_{Rd} = 20,0 kN	12,7%	Sim
		$M_{x,Ed}$ = 0,002 kN·m	---	---	---
		$M_{y,Ed}$ = 0,199 kN·m	---	---	---
594: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,019 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,2%	Sim
		$V_{y,Ed}$ = 0,4 kN	$V_{y,Rd}$ = 15,0 kN	2,4%	Sim
		$V_{z,Ed}$ = 1,4 kN	$V_{z,Rd}$ = 5,0 kN	27,6%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,3%	Sim
		$M_{x,Ed}$ = 0,003 kN·m	---	---	---
		$M_{y,Ed}$ = 0,748 kN·m	---	---	---
595: CHSH	Acero Tub T02	$M_{z,Ed}$ = 0,012 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,0%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
48.3x3.2		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	7,3%	Sim
		N_{Ed} = 1,4 kN	N_{Rd} = 20,0 kN	6,9%	Sim
		$M_{x,Ed}$ = 0,004 kN·m	---	---	---
		$M_{y,Ed}$ = 0,380 kN·m	---	---	---

Nó 256 [+109; +1400; +2438] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
530: CHSH 48.3x3.2 598: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,5 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,7%	Sim
Travessas / longarinas					
592: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,008 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,7 kN	$V_{z,Rd}$ = 5,0 kN	13,5%	Sim
		N_{Ed} = 2,8 kN	N_{Rd} = 20,0 kN	14,0%	Sim
		$M_{x,Ed}$ = 0,006 kN·m	---	---	---
		$M_{y,Ed}$ = 0,360 kN·m	---	---	---
594: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,019 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,1%	Sim
		$V_{y,Ed}$ = 0,4 kN	$V_{y,Rd}$ = 15,0 kN	2,4%	Sim
		$V_{z,Ed}$ = 1,4 kN	$V_{z,Rd}$ = 5,0 kN	27,6%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,3%	Sim
		$M_{x,Ed}$ = 0,003 kN·m	---	---	---
		$M_{y,Ed}$ = 0,755 kN·m	---	---	---
597: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,011 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,8%	Sim
		N_{Ed} = 1,5 kN	N_{Rd} = 20,0 kN	7,7%	Sim
		$M_{x,Ed}$ = 0,003 kN·m	---	---	---
		$M_{y,Ed}$ = 0,229 kN·m	---	---	---

Nó 257 [+0; +1400; +2645] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
532: CHSH 48.3x3.2 601: CHSH	Acero R02	$\Sigma V_{y,Ed}$ = 0,4 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,6%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
48.3x3.2					
Travessas / longarinas					
595: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,010 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	7,3%	Sim
		N_{Ed} = 1,4 kN	N_{Rd} = 20,0 kN	6,9%	Sim
		$M_{x,Ed}$ = 0,004 kN·m	---	---	---
		$M_{y,Ed}$ = 0,381 kN·m	---	---	---
599: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,029 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,8%	Sim
		$V_{y,Ed}$ = 0,3 kN	$V_{y,Rd}$ = 15,0 kN	2,1%	Sim
		$V_{z,Ed}$ = 1,3 kN	$V_{z,Rd}$ = 5,0 kN	26,0%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	0,9%	Sim
		$M_{x,Ed}$ = 0,003 kN·m	---	---	---
		$M_{y,Ed}$ = 0,714 kN·m	---	---	---
600: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,005 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,8%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,5 kN	$V_{z,Rd}$ = 5,0 kN	10,1%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,6%	Sim
		$M_{x,Ed}$ = 0,006 kN·m	---	---	---
		$M_{y,Ed}$ = 0,205 kN·m	---	---	---

Nó 258 [+109; +1400; +2645] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
534: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,5 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,8%	Sim
604: CHSH 48.3x3.2					
Travessas / longarinas					
597: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,009 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,8 kN	$V_{z,Rd}$ = 5,0 kN	16,1%	Sim
		N_{Ed} = 1,5 kN	N_{Rd} = 20,0 kN	7,7%	Sim
		$M_{x,Ed}$ = 0,003 kN·m	---	---	---
		$M_{y,Ed}$ = 0,541 kN·m	---	---	---
599: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,025 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,2%	Sim
		$V_{y,Ed}$ = 0,3 kN	$V_{y,Rd}$ = 15,0 kN	2,1%	Sim
		$V_{z,Ed}$ = 1,3 kN	$V_{z,Rd}$ = 5,0 kN	26,0%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	0,9%	Sim
		$M_{x,Ed}$ = 0,003	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		kN·m			
		$M_{y,Ed}$ = 0,702 kN·m	---	---	---
602: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,026 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,3%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,7%	Sim
		$M_{x,Ed}$ = 0,003 kN·m	---	---	---
		$M_{y,Ed}$ = 0,185 kN·m	---	---	---
603: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,001 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,2%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 5,0 kN	6,9%	Sim
		N_{Ed} = 1,0 kN	N_{Rd} = 20,0 kN	4,9%	Sim
		$M_{x,Ed}$ = 0,008 kN·m	---	---	---
		$M_{y,Ed}$ = 0,204 kN·m	---	---	---
Diagonais					
605: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 0,2 kN	$N_{c,Rd}$ = 7,0 kN	3,2%	Sim
		$N_{t,Ed}$ = 1,1 kN	$N_{t,Rd}$ = 7,0 kN	15,4%	Sim
		$V_{y,Ed}$ = 0,0 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,027 kN·m	---	---	---
		$M_{y,Ed}$ = 0,010 kN·m	---	---	---
		$M_{z,Ed}$ = 0,009 kN·m	---	---	---

Nó 259 [+416; +1400; +2645] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
426: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
602: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,030 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,1%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,3%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,7%	Sim
		$M_{x,Ed}$ = 0,003 kN·m	---	---	---
		$M_{y,Ed}$ = 0,176 kN·m	---	---	---
606: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,004 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,6%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 5,0 kN	6,9%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,5%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$M_{x,Ed}$ = 0,011 kN·m	---	---	---
		$M_{y,Ed}$ = 0,188 kN·m	---	---	---

Nó 260 [+0; +1400; +2754] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
536: CHSH 48.3x3.2 608: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,3%	Sim
Travessas / longarinas					
600: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,007 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,1%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,5 kN	$V_{z,Rd}$ = 5,0 kN	10,1%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,6%	Sim
		$M_{x,Ed}$ = 0,006 kN·m	---	---	---
		$M_{y,Ed}$ = 0,347 kN·m	---	---	---
607: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,025 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,2%	Sim
		$V_{y,Ed}$ = 0,2 kN	$V_{y,Rd}$ = 15,0 kN	1,0%	Sim
		$V_{z,Ed}$ = 0,5 kN	$V_{z,Rd}$ = 5,0 kN	11,0%	Sim
		N_{Ed} = 0,9 kN	N_{Rd} = 20,0 kN	4,6%	Sim
		$M_{x,Ed}$ = 0,003 kN·m	---	---	---
		$M_{y,Ed}$ = 0,299 kN·m	---	---	---

Nó 261 [+109; +1400; +2754] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
537: CHSH 48.3x3.2 610: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 1,3 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	2,0%	Sim
Travessas / longarinas					
603: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,003 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,4%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,8 kN	$V_{z,Rd}$ = 5,0 kN	16,0%	Sim
		N_{Ed} = 1,0 kN	N_{Rd} = 20,0 kN	4,9%	Sim
		$M_{x,Ed}$ = 0,008 kN·m	---	---	---
		$M_{y,Ed}$ = 0,419 kN·m	---	---	---
607: CHSH	Acero Tub T02	$M_{z,Ed}$ = 0,025	$M_{z,Rd}$ = 0,600	4,2%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
48.3x3.2		kN·m	kN·m		
		$V_{y,Ed}$ = 0,2 kN	$V_{y,Rd}$ = 15,0 kN	1,1%	Sim
		$V_{z,Ed}$ = 0,5 kN	$V_{z,Rd}$ = 5,0 kN	11,0%	Sim
		N_{Ed} = 0,9 kN	N_{Rd} = 20,0 kN	4,6%	Sim
		$M_{x,Ed}$ = 0,003 kN·m	---	---	---
		$M_{y,Ed}$ = 0,298 kN·m	---	---	---
609: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,028 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,4%	Sim
		N_{Ed} = 1,5 kN	N_{Rd} = 20,0 kN	7,5%	Sim
		$M_{x,Ed}$ = 0,003 kN·m	---	---	---
		$M_{y,Ed}$ = 0,090 kN·m	---	---	---
Diagonais					
424: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 2,6 kN	$N_{c,Rd}$ = 7,0 kN	37,3%	Sim
		$N_{t,Ed}$ = 1,3 kN	$N_{t,Rd}$ = 7,0 kN	18,1%	Sim
		$V_{y,Ed}$ = 0,0 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,010 kN·m	---	---	---
		$M_{y,Ed}$ = 0,020 kN·m	---	---	---
		$M_{z,Ed}$ = 0,008 kN·m	---	---	---
432: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 4,3 kN	$N_{c,Rd}$ = 7,0 kN	61,8%	Sim
		$N_{t,Ed}$ = 4,2 kN	$N_{t,Rd}$ = 7,0 kN	59,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,002 kN·m	---	---	---
		$M_{y,Ed}$ = 0,036 kN·m	---	---	---
		$M_{z,Ed}$ = 0,027 kN·m	---	---	---

Nó 262 [+416; +1400; +2754] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
433: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 1,3 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	2,0%	Sim
Travessas / longarinas					
606: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,006 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,0%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 5,0 kN	6,9%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,5%	Sim
		$M_{x,Ed}$ = 0,011 kN·m	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$M_{y,Ed}$ = 0,190 kN·m	---	---	---
609: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,020 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,4%	Sim
		N_{Ed} = 1,5 kN	N_{Rd} = 20,0 kN	7,5%	Sim
		$M_{x,Ed}$ = 0,003 kN·m	---	---	---
		$M_{y,Ed}$ = 0,127 kN·m	---	---	---
Diagonais					
427: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 0,4 kN	$N_{c,Rd}$ = 7,0 kN	5,6%	Sim
		$N_{t,Ed}$ = 0,3 kN	$N_{t,Rd}$ = 7,0 kN	4,8%	Sim
		$V_{y,Ed}$ = 0,0 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,005 kN·m	---	---	---
		$M_{y,Ed}$ = 0,007 kN·m	---	---	---
		$M_{z,Ed}$ = 0,008 kN·m	---	---	---
611: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 1,5 kN	$N_{c,Rd}$ = 7,0 kN	21,6%	Sim
		$N_{t,Ed}$ = 1,1 kN	$N_{t,Rd}$ = 7,0 kN	15,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,010 kN·m	---	---	---
		$M_{y,Ed}$ = 0,050 kN·m	---	---	---
		$M_{z,Ed}$ = 0,022 kN·m	---	---	---

Nó 263 [+0; +1450; -36] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
540: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,3 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,4%	Sim
614: CHSH 48.3x3.2					
Travessas / longarinas					
612: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,126 kN·m	$M_{z,Rd}$ = 0,600 kN·m	21,0%	Sim
		$V_{y,Ed}$ = 0,3 kN	$V_{y,Rd}$ = 15,0 kN	1,7%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	7,6%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,6%	Sim
		$M_{x,Ed}$ = 0,004 kN·m	---	---	---
		$M_{y,Ed}$ = 0,207 kN·m	---	---	---
613: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,010 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,7%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,7%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,6%	Sim
		$M_{x,Ed}$ = 0,013 kN·m	---	---	---
		$M_{v,Ed}$ = 0,190 kN·m	---	---	---

Nó 264 [+109; +1450; -36] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
542: CHSH 48.3x3.2 616: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,3 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,4%	Sim
Travessas / longarinas					
612: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,122 kN·m	$M_{z,Rd}$ = 0,600 kN·m	20,3%	Sim
		$V_{y,Ed}$ = 0,2 kN	$V_{y,Rd}$ = 15,0 kN	1,6%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	7,6%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,6%	Sim
		$M_{x,Ed}$ = 0,004 kN·m	---	---	---
		$M_{v,Ed}$ = 0,210 kN·m	---	---	---
615: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,006 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,0%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,6%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	2,9%	Sim
		$M_{x,Ed}$ = 0,016 kN·m	---	---	---
		$M_{v,Ed}$ = 0,193 kN·m	---	---	---

Nó 265 [+0; +1450; +73] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
546: CHSH 48.3x3.2 618: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
613: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,006 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,0%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,7%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,6%	Sim
		$M_{x,Ed}$ = 0,013 kN·m	---	---	---
		$M_{y,Ed}$ = 0,045	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		kN·m			
617: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,018 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,2%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	3,1%	Sim
		$M_{x,Ed}$ = 0,009 kN·m	---	---	---
		$M_{y,Ed}$ = 0,136 kN·m	---	---	---

Nó 266 [+109; +1450; +73] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
548: CHSH 48.3x3.2 620: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
615: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,004 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,6%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,6%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	2,9%	Sim
		$M_{x,Ed}$ = 0,016 kN·m	---	---	---
		$M_{y,Ed}$ = 0,051 kN·m	---	---	---
619: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,025 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,1%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,1%	Sim
		N_{Ed} = 0,7 kN	N_{Rd} = 20,0 kN	3,7%	Sim
		$M_{x,Ed}$ = 0,009 kN·m	---	---	---
		$M_{y,Ed}$ = 0,126 kN·m	---	---	---

Nó 267 [+0; +1450; +330] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
551: CHSH 48.3x3.2 622: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
617: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,016 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,2%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	3,1%	Sim
		$M_{x,Ed}$ = 0,009 kN·m	---	---	---
		$M_{y,Ed}$ = 0,152 kN·m	---	---	---
621: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,026 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,2%	Sim
		N_{Ed} = 0,7 kN	N_{Rd} = 20,0 kN	3,6%	Sim
		$M_{x,Ed}$ = 0,003 kN·m	---	---	---
		$M_{y,Ed}$ = 0,061 kN·m	---	---	---

Nó 268 [+109; +1450; +330] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
553: CHSH 48.3x3.2 624: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
619: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,014 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,1%	Sim
		N_{Ed} = 0,7 kN	N_{Rd} = 20,0 kN	3,7%	Sim
		$M_{x,Ed}$ = 0,009 kN·m	---	---	---
		$M_{y,Ed}$ = 0,144 kN·m	---	---	---
623: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,028 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,2%	Sim
		N_{Ed} = 0,9 kN	N_{Rd} = 20,0 kN	4,7%	Sim
		$M_{x,Ed}$ = 0,003 kN·m	---	---	---
		$M_{y,Ed}$ = 0,065 kN·m	---	---	---

Nó 269 [+0; +1450; +637] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
556: CHSH 48.3x3.2 626: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
621: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,025 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,2%	Sim
		N_{Ed} = 0,7 kN	N_{Rd} = 20,0 kN	3,6%	Sim
		$M_{x,Ed}$ = 0,003 kN·m	---	---	---
		$M_{y,Ed}$ = 0,089 kN·m	---	---	---
625: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,020 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,0%	Sim
		N_{Ed} = 0,8 kN	N_{Rd} = 20,0 kN	3,8%	Sim
		$M_{x,Ed}$ = 0,019 kN·m	---	---	---
		$M_{y,Ed}$ = 0,148 kN·m	---	---	---

Nó 270 [+109; +1450; +637] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
558: CHSH 48.3x3.2 628: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
623: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,023 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,2%	Sim
		N_{Ed} = 0,9 kN	N_{Rd} = 20,0 kN	4,7%	Sim
		$M_{x,Ed}$ = 0,003 kN·m	---	---	---
		$M_{y,Ed}$ = 0,090 kN·m	---	---	---
627: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,020 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	1,0%	Sim
		N_{Ed} = 0,9 kN	N_{Rd} = 20,0 kN	4,6%	Sim
		$M_{x,Ed}$ = 0,019 kN·m	---	---	---
		$M_{y,Ed}$ = 0,140 kN·m	---	---	---

Nó 271 [+0; +1450; +894] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
562: CHSH	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0	0,2%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
48.3x3.2 630: CHSH 48.3x3.2			kN		
Travessas / longarinas					
625: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,019 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,1%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,0%	Sim
		N_{Ed} = 0,8 kN	N_{Rd} = 20,0 kN	3,8%	Sim
		$M_{x,Ed}$ = 0,019 kN·m	---	---	---
		$M_{y,Ed}$ = 0,021 kN·m	---	---	---
629: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,028 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,5%	Sim
		N_{Ed} = 0,8 kN	N_{Rd} = 20,0 kN	3,9%	Sim
		$M_{x,Ed}$ = 0,043 kN·m	---	---	---
		$M_{y,Ed}$ = 0,226 kN·m	---	---	---

Nó 272 [+109; +1450; +894] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
564: CHSH 48.3x3.2 632: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
627: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,014 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	1,0%	Sim
		N_{Ed} = 0,9 kN	N_{Rd} = 20,0 kN	4,6%	Sim
		$M_{x,Ed}$ = 0,019 kN·m	---	---	---
		$M_{y,Ed}$ = 0,020 kN·m	---	---	---
631: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,025 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,5%	Sim
		N_{Ed} = 1,0 kN	N_{Rd} = 20,0 kN	5,0%	Sim
		$M_{x,Ed}$ = 0,043 kN·m	---	---	---
		$M_{y,Ed}$ = 0,230 kN·m	---	---	---

Nó 273 [+0; +1450; +1201] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
567: CHSH 48.3x3.2 634: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,3%	Sim
Travessas / longarinas					
629: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,028 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,5%	Sim
		N_{Ed} = 0,8 kN	N_{Rd} = 20,0 kN	3,9%	Sim
		$M_{x,Ed}$ = 0,043 kN·m	---	---	---
		$M_{y,Ed}$ = 0,459 kN·m	---	---	---
633: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,054 kN·m	$M_{z,Rd}$ = 0,600 kN·m	8,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,7%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	5,0%	Sim
		N_{Ed} = 0,8 kN	N_{Rd} = 20,0 kN	3,9%	Sim
		$M_{x,Ed}$ = 0,043 kN·m	---	---	---
		$M_{y,Ed}$ = 0,494 kN·m	---	---	---

Nó 274 [+109; +1450; +1201] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
569: CHSH 48.3x3.2 636: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,3%	Sim
Travessas / longarinas					
631: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,025 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,1%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,5%	Sim
		N_{Ed} = 1,0 kN	N_{Rd} = 20,0 kN	5,0%	Sim
		$M_{x,Ed}$ = 0,043 kN·m	---	---	---
		$M_{y,Ed}$ = 0,454 kN·m	---	---	---
635: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,036 kN·m	$M_{z,Rd}$ = 0,600 kN·m	6,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 5,0 kN	5,0%	Sim
		N_{Ed} = 0,9 kN	N_{Rd} = 20,0 kN	4,6%	Sim
		$M_{x,Ed}$ = 0,043 kN·m	---	---	---
		$M_{y,Ed}$ = 0,502 kN·m	---	---	---

Nó 275 [+0; +1450; +1508] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
574: CHSH 48.3x3.2 638: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
633: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,011 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	5,0%	Sim
		N_{Ed} = 0,8 kN	N_{Rd} = 20,0 kN	3,9%	Sim
		$M_{x,Ed}$ = 0,043 kN·m	---	---	---
		$M_{v,Ed}$ = 0,271 kN·m	---	---	---
637: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,021 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,3%	Sim
		N_{Ed} = 0,9 kN	N_{Rd} = 20,0 kN	4,4%	Sim
		$M_{x,Ed}$ = 0,019 kN·m	---	---	---
		$M_{y,Ed}$ = 0,006 kN·m	---	---	---

Nó 276 [+109; +1450; +1508] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
576: CHSH 48.3x3.2 640: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
635: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,016 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 5,0 kN	5,0%	Sim
		N_{Ed} = 0,9 kN	N_{Rd} = 20,0 kN	4,6%	Sim
		$M_{x,Ed}$ = 0,043 kN·m	---	---	---
		$M_{y,Ed}$ = 0,273 kN·m	---	---	---
639: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,021 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,2%	Sim
		N_{Ed} = 0,9 kN	N_{Rd} = 20,0 kN	4,7%	Sim
		$M_{x,Ed}$ = 0,018 kN·m	---	---	---
		$M_{y,Ed}$ = 0,010	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		kN·m			

Nó 277 [+0; +1450; +1815] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
579: CHSH 48.3x3.2 642: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,3%	Sim
Travessas / longarinas					
637: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,038 kN·m	$M_{z,Rd}$ = 0,600 kN·m	6,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,3%	Sim
		N_{Ed} = 0,9 kN	N_{Rd} = 20,0 kN	4,4%	Sim
		$M_{x,Ed}$ = 0,019 kN·m	---	---	---
		$M_{y,Ed}$ = 0,189 kN·m	---	---	---
641: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,024 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,7%	Sim
		N_{Ed} = 0,9 kN	N_{Rd} = 20,0 kN	4,6%	Sim
		$M_{x,Ed}$ = 0,012 kN·m	---	---	---
		$M_{y,Ed}$ = 0,111 kN·m	---	---	---

Nó 278 [+109; +1450; +1815] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
581: CHSH 48.3x3.2 644: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
639: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,026 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,2%	Sim
		N_{Ed} = 0,9 kN	N_{Rd} = 20,0 kN	4,7%	Sim
		$M_{x,Ed}$ = 0,018 kN·m	---	---	---
		$M_{y,Ed}$ = 0,181 kN·m	---	---	---
643: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,018 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,1%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,6%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		N_{Ed} = 0,8 kN	N_{Rd} = 20,0 kN	4,2%	Sim
		$M_{x,Ed}$ = 0,012 kN·m	---	---	---
		$M_{y,Ed}$ = 0,113 kN·m	---	---	---

Nó 279 [+0; +1450; +2122] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
585: CHSH 48.3x3.2 646: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
641: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,042 kN·m	$M_{z,Rd}$ = 0,600 kN·m	7,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,7%	Sim
		N_{Ed} = 0,9 kN	N_{Rd} = 20,0 kN	4,6%	Sim
		$M_{x,Ed}$ = 0,012 kN·m	---	---	---
		$M_{y,Ed}$ = 0,014 kN·m	---	---	---
645: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,008 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,3%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,2%	Sim
		N_{Ed} = 0,9 kN	N_{Rd} = 20,0 kN	4,4%	Sim
		$M_{x,Ed}$ = 0,012 kN·m	---	---	---
		$M_{y,Ed}$ = 0,057 kN·m	---	---	---

Nó 280 [+109; +1450; +2122] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
587: CHSH 48.3x3.2 648: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
643: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,029 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,6%	Sim
		N_{Ed} = 0,8 kN	N_{Rd} = 20,0 kN	4,2%	Sim
		$M_{x,Ed}$ = 0,012 kN·m	---	---	---
		$M_{y,Ed}$ = 0,022 kN·m	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
647: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,004 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,7%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,5%	Sim
		N_{Ed} = 0,8 kN	N_{Rd} = 20,0 kN	4,1%	Sim
		$M_{x,Ed}$ = 0,009 kN·m	---	---	---
		$M_{y,Ed}$ = 0,021 kN·m	---	---	---

Nó 281 [+0; +1450; +2231] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
591: CHSH 48.3x3.2 650: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
645: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,013 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,1%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,2%	Sim
		N_{Ed} = 0,9 kN	N_{Rd} = 20,0 kN	4,4%	Sim
		$M_{x,Ed}$ = 0,012 kN·m	---	---	---
		$M_{y,Ed}$ = 0,047 kN·m	---	---	---
649: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,020 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,1%	Sim
		N_{Ed} = 0,8 kN	N_{Rd} = 20,0 kN	4,0%	Sim
		$M_{x,Ed}$ = 0,023 kN·m	---	---	---
		$M_{y,Ed}$ = 0,107 kN·m	---	---	---

Nó 282 [+109; +1450; +2231] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
593: CHSH 48.3x3.2 652: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,1%	Sim
Travessas / longarinas					
647: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,008 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,4%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,5%	Sim
		N_{Ed} = 0,8 kN	N_{Rd} = 20,0 kN	4,1%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$M_{x,Ed}$ = 0,009 kN·m	---	---	---
		$M_{y,Ed}$ = 0,050 kN·m	---	---	---
651: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,010 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,3%	Sim
		N_{Ed} = 0,8 kN	N_{Rd} = 20,0 kN	3,9%	Sim
		$M_{x,Ed}$ = 0,022 kN·m	---	---	---
		$M_{y,Ed}$ = 0,123 kN·m	---	---	---

Nó 283 [+0; +1450; +2438] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
596: CHSH 48.3x3.2 654: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
649: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,015 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,1%	Sim
		N_{Ed} = 0,8 kN	N_{Rd} = 20,0 kN	4,0%	Sim
		$M_{x,Ed}$ = 0,023 kN·m	---	---	---
		$M_{y,Ed}$ = 0,003 kN·m	---	---	---
653: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,019 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,9%	Sim
		N_{Ed} = 0,7 kN	N_{Rd} = 20,0 kN	3,5%	Sim
		$M_{x,Ed}$ = 0,032 kN·m	---	---	---
		$M_{y,Ed}$ = 0,138 kN·m	---	---	---

Nó 284 [+109; +1450; +2438] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
598: CHSH 48.3x3.2 656: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
651: CHSH	Acero Tub T02	$M_{z,Ed}$ = 0,009	$M_{z,Rd}$ = 0,600	1,5%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
48.3x3.2		kN·m	kN·m		
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,3%	Sim
		N_{Ed} = 0,8 kN	N_{Rd} = 20,0 kN	3,9%	Sim
		$M_{x,Ed}$ = 0,022 kN·m	---	---	---
		$M_{y,Ed}$ = 0,007 kN·m	---	---	---
655: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,010 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,8%	Sim
		N_{Ed} = 0,7 kN	N_{Rd} = 20,0 kN	3,4%	Sim
		$M_{x,Ed}$ = 0,031 kN·m	---	---	---
		$M_{y,Ed}$ = 0,134 kN·m	---	---	---

Nó 285 [+0; +1450; +2645] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
601: CHSH 48.3x3.2 658: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,1%	Sim
Travessas / longarinas					
653: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,019 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,9%	Sim
		N_{Ed} = 0,7 kN	N_{Rd} = 20,0 kN	3,5%	Sim
		$M_{x,Ed}$ = 0,032 kN·m	---	---	---
		$M_{y,Ed}$ = 0,159 kN·m	---	---	---
657: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,014 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,4%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	3,5%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	2,8%	Sim
		$M_{x,Ed}$ = 0,026 kN·m	---	---	---
		$M_{y,Ed}$ = 0,046 kN·m	---	---	---

Nó 286 [+109; +1450; +2645] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
604: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,1%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
660: CHSH 48.3x3.2					
Travessas / longarinas					
655: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,008 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,8%	Sim
		N_{Ed} = 0,7 kN	N_{Rd} = 20,0 kN	3,4%	Sim
		$M_{x,Ed}$ = 0,031 kN·m	---	---	---
		$M_{y,Ed}$ = 0,161 kN·m	---	---	---
659: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,004 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,6%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	3,6%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	2,8%	Sim
		$M_{x,Ed}$ = 0,026 kN·m	---	---	---
		$M_{y,Ed}$ = 0,041 kN·m	---	---	---

Nó 287 [+0; +1450; +2754] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
608: CHSH 48.3x3.2 662: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,1%	Sim
Travessas / longarinas					
657: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,017 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	3,5%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	2,8%	Sim
		$M_{x,Ed}$ = 0,026 kN·m	---	---	---
		$M_{y,Ed}$ = 0,236 kN·m	---	---	---
661: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,032 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	9,0%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,3%	Sim
		$M_{x,Ed}$ = 0,013 kN·m	---	---	---
		$M_{y,Ed}$ = 0,244 kN·m	---	---	---

Nó 288 [+109; +1450; +2754] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
610: CHSH 48.3x3.2 663: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
659: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,006 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,0%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	3,6%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	2,8%	Sim
		$M_{x,Ed}$ = 0,026 kN·m	---	---	---
		$M_{y,Ed}$ = 0,237 kN·m	---	---	---
661: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,030 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	9,0%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,3%	Sim
		$M_{x,Ed}$ = 0,013 kN·m	---	---	---
		$M_{y,Ed}$ = 0,246 kN·m	---	---	---

Nó 289 [+0; +1500; -36] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
614: CHSH 48.3x3.2 666: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,5 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,7%	Sim
Travessas / longarinas					
664: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,238 kN·m	$M_{z,Rd}$ = 0,600 kN·m	39,6%	Sim
		$V_{y,Ed}$ = 0,5 kN	$V_{y,Rd}$ = 15,0 kN	3,1%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 5,0 kN	6,6%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,3%	Sim
		$M_{x,Ed}$ = 0,012 kN·m	---	---	---
		$M_{y,Ed}$ = 0,181 kN·m	---	---	---
665: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,020 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,5%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	1,9%	Sim
		$M_{x,Ed}$ = 0,015 kN·m	---	---	---
		$M_{y,Ed}$ = 0,159 kN·m	---	---	---

Nó 290 [+109; +1500; -36] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
616: CHSH 48.3x3.2 668: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,5 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,7%	Sim
Travessas / longarinas					
664: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,235 kN·m	$M_{z,Rd}$ = 0,600 kN·m	39,1%	Sim
		$V_{y,Ed}$ = 0,4 kN	$V_{y,Rd}$ = 15,0 kN	3,0%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 5,0 kN	6,6%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,3%	Sim
		$M_{x,Ed}$ = 0,012 kN·m	---	---	---
		$M_{v,Ed}$ = 0,180 kN·m	---	---	---
667: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,003 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,5%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,3%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	1,8%	Sim
		$M_{x,Ed}$ = 0,021 kN·m	---	---	---
		$M_{y,Ed}$ = 0,158 kN·m	---	---	---

Nó 291 [+0; +1500; +73] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
618: CHSH 48.3x3.2 670: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
665: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,016 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,5%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	1,9%	Sim
		$M_{x,Ed}$ = 0,015 kN·m	---	---	---
		$M_{y,Ed}$ = 0,079 kN·m	---	---	---
669: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,026 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,0%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,1%	Sim
		$M_{x,Ed}$ = 0,008 kN·m	---	---	---
		$M_{y,Ed}$ = 0,121	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		kN·m			

Nó 292 [+109; +1500; +73] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
620: CHSH 48.3x3.2 672: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
667: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,006 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,1%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,3%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	1,8%	Sim
		$M_{x,Ed}$ = 0,021 kN·m	---	---	---
		$M_{y,Ed}$ = 0,086 kN·m	---	---	---
671: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,019 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,1%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,9%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,2%	Sim
		$M_{x,Ed}$ = 0,009 kN·m	---	---	---
		$M_{y,Ed}$ = 0,114 kN·m	---	---	---

Nó 293 [+0; +1500; +330] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
622: CHSH 48.3x3.2 674: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
669: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,026 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,0%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,1%	Sim
		$M_{x,Ed}$ = 0,008 kN·m	---	---	---
		$M_{y,Ed}$ = 0,133 kN·m	---	---	---
673: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,033 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,0%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,3%	Sim
		$M_{x,Ed}$ = 0,005 kN·m	---	---	---
		$M_{y,Ed}$ = 0,073 kN·m	---	---	---

Nó 294 [+109; +1500; +330] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
624: CHSH 48.3x3.2 676: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
671: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,013 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,1%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,9%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,2%	Sim
		$M_{x,Ed}$ = 0,009 kN·m	---	---	---
		$M_{y,Ed}$ = 0,126 kN·m	---	---	---
675: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,023 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,0%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,2%	Sim
		$M_{x,Ed}$ = 0,004 kN·m	---	---	---
		$M_{y,Ed}$ = 0,077 kN·m	---	---	---

Nó 295 [+0; +1500; +637] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
626: CHSH 48.3x3.2 678: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
673: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,033 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,0%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,3%	Sim
		$M_{x,Ed}$ = 0,005 kN·m	---	---	---
		$M_{y,Ed}$ = 0,076 kN·m	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
677: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,026 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,6%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,4%	Sim
		$M_{x,Ed}$ = 0,039 kN·m	---	---	---
		$M_{y,Ed}$ = 0,118 kN·m	---	---	---

Nó 296 [+109; +1500; +637] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
628: CHSH 48.3x3.2 680: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
675: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,022 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,0%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,2%	Sim
		$M_{x,Ed}$ = 0,004 kN·m	---	---	---
		$M_{y,Ed}$ = 0,078 kN·m	---	---	---
679: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,018 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,6%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,5%	Sim
		$M_{x,Ed}$ = 0,036 kN·m	---	---	---
		$M_{y,Ed}$ = 0,112 kN·m	---	---	---

Nó 297 [+0; +1500; +894] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
630: CHSH 48.3x3.2 682: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
677: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,026 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,6%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,4%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$M_{x,Ed}$ = 0,039 kN·m	---	---	---
		$M_{y,Ed}$ = 0,047 kN·m	---	---	---
681: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,032 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	3,8%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,5%	Sim
		$M_{x,Ed}$ = 0,046 kN·m	---	---	---
		$M_{y,Ed}$ = 0,181 kN·m	---	---	---

Nó 298 [+109; +1500; +894] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
632: CHSH 48.3x3.2 684: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
679: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,014 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,6%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,5%	Sim
		$M_{x,Ed}$ = 0,036 kN·m	---	---	---
		$M_{y,Ed}$ = 0,046 kN·m	---	---	---
683: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,025 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,1%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	3,8%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,5%	Sim
		$M_{x,Ed}$ = 0,048 kN·m	---	---	---
		$M_{y,Ed}$ = 0,183 kN·m	---	---	---

Nó 299 [+0; +1500; +1201] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
634: CHSH 48.3x3.2 686: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,3%	Sim
Travessas / longarinas					
681: CHSH	Acero Tub T02	$M_{z,Ed}$ = 0,035	$M_{z,Rd}$ = 0,600	5,8%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
48.3x3.2		kN·m	kN·m		
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	3,8%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,5%	Sim
		$M_{x,Ed}$ = 0,046 kN·m	---	---	---
		$M_{y,Ed}$ = 0,410 kN·m	---	---	---
685: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,057 kN·m	$M_{z,Rd}$ = 0,600 kN·m	9,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,7%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,2%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	2,9%	Sim
		$M_{x,Ed}$ = 0,045 kN·m	---	---	---
		$M_{y,Ed}$ = 0,431 kN·m	---	---	---

Nó 300 [+109; +1500; +1201] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
636: CHSH 48.3x3.2 688: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,3%	Sim
Travessas / longarinas					
683: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,023 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	3,8%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,5%	Sim
		$M_{x,Ed}$ = 0,048 kN·m	---	---	---
		$M_{y,Ed}$ = 0,407 kN·m	---	---	---
687: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,038 kN·m	$M_{z,Rd}$ = 0,600 kN·m	6,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,2%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	2,8%	Sim
		$M_{x,Ed}$ = 0,045 kN·m	---	---	---
		$M_{y,Ed}$ = 0,434 kN·m	---	---	---

Nó 301 [+0; +1500; +1508] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
638: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
690: CHSH 48.3x3.2					
Travessas / longarinas					
685: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,016 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,2%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	2,9%	Sim
		$M_{x,Ed}$ = 0,045 kN·m	---	---	---
		$M_{y,Ed}$ = 0,211 kN·m	---	---	---
689: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,026 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,8%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	3,0%	Sim
		$M_{x,Ed}$ = 0,037 kN·m	---	---	---
		$M_{y,Ed}$ = 0,037 kN·m	---	---	---

Nó 302 [+109; +1500; +1508] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
640: CHSH 48.3x3.2 692: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
687: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,014 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,2%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	2,8%	Sim
		$M_{x,Ed}$ = 0,045 kN·m	---	---	---
		$M_{y,Ed}$ = 0,210 kN·m	---	---	---
691: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,022 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,7%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,6%	Sim
		$M_{x,Ed}$ = 0,036 kN·m	---	---	---
		$M_{y,Ed}$ = 0,041 kN·m	---	---	---

Nó 303 [+0; +1500; +1815] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
642: CHSH 48.3x3.2 694: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
689: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,044 kN·m	$M_{z,Rd}$ = 0,600 kN·m	7,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,8%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	3,0%	Sim
		$M_{x,Ed}$ = 0,037 kN·m	---	---	---
		$M_{y,Ed}$ = 0,149 kN·m	---	---	---
693: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,028 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,6%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	2,8%	Sim
		$M_{x,Ed}$ = 0,012 kN·m	---	---	---
		$M_{y,Ed}$ = 0,105 kN·m	---	---	---

Nó 304 [+109; +1500; +1815] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
644: CHSH 48.3x3.2 696: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
691: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,023 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,7%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,6%	Sim
		$M_{x,Ed}$ = 0,036 kN·m	---	---	---
		$M_{y,Ed}$ = 0,143 kN·m	---	---	---
695: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,020 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,6%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	2,8%	Sim
		$M_{x,Ed}$ = 0,013 kN·m	---	---	---
		$M_{y,Ed}$ = 0,106 kN·m	---	---	---

Nó 305 [+0; +1500; +2122] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
646: CHSH 48.3x3.2 698: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
693: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,045 kN·m	$M_{z,Rd}$ = 0,600 kN·m	7,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,6%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	2,8%	Sim
		$M_{x,Ed}$ = 0,012 kN·m	---	---	---
		$M_{v,Ed}$ = 0,018 kN·m	---	---	---
697: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,011 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,8%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,2%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,5%	Sim
		$M_{x,Ed}$ = 0,026 kN·m	---	---	---
		$M_{y,Ed}$ = 0,044 kN·m	---	---	---

Nó 306 [+109; +1500; +2122] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
648: CHSH 48.3x3.2 700: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
695: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,027 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,6%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	2,8%	Sim
		$M_{x,Ed}$ = 0,013 kN·m	---	---	---
		$M_{y,Ed}$ = 0,024 kN·m	---	---	---
699: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,002 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,3%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,5%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,6%	Sim
		$M_{x,Ed}$ = 0,021 kN·m	---	---	---
		$M_{y,Ed}$ = 0,023	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		kN·m			

Nó 307 [+0; +1500; +2231] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
650: CHSH 48.3x3.2 702: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
697: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,015 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,2%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,5%	Sim
		$M_{x,Ed}$ = 0,026 kN·m	---	---	---
		$M_{y,Ed}$ = 0,052 kN·m	---	---	---
701: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,020 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,7%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,5%	Sim
		$M_{x,Ed}$ = 0,041 kN·m	---	---	---
		$M_{y,Ed}$ = 0,086 kN·m	---	---	---

Nó 308 [+109; +1500; +2231] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
652: CHSH 48.3x3.2 704: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,1%	Sim
Travessas / longarinas					
699: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,005 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,8%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,5%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,6%	Sim
		$M_{x,Ed}$ = 0,021 kN·m	---	---	---
		$M_{y,Ed}$ = 0,049 kN·m	---	---	---
703: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,011 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,7%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,5%	Sim
		$M_{x,Ed}$ = 0,041 kN·m	---	---	---
		$M_{y,Ed}$ = 0,094 kN·m	---	---	---

Nó 309 [+0; +1500; +2438] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
654: CHSH 48.3x3.2 706: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
701: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,016 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,7%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,5%	Sim
		$M_{x,Ed}$ = 0,041 kN·m	---	---	---
		$M_{y,Ed}$ = 0,020 kN·m	---	---	---
705: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,018 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,2%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,4%	Sim
		$M_{x,Ed}$ = 0,047 kN·m	---	---	---
		$M_{y,Ed}$ = 0,104 kN·m	---	---	---

Nó 310 [+109; +1500; +2438] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
656: CHSH 48.3x3.2 708: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
703: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,010 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,7%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,5%	Sim
		$M_{x,Ed}$ = 0,041 kN·m	---	---	---
		$M_{y,Ed}$ = 0,019 kN·m	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
707: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,012 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,2%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,5%	Sim
		$M_{x,Ed}$ = 0,048 kN·m	---	---	---
		$M_{y,Ed}$ = 0,100 kN·m	---	---	---

Nó 311 [+0; +1500; +2645] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
658: CHSH 48.3x3.2 710: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,1%	Sim
Travessas / longarinas					
705: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,019 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,2%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,4%	Sim
		$M_{x,Ed}$ = 0,047 kN·m	---	---	---
		$M_{y,Ed}$ = 0,127 kN·m	---	---	---
709: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,014 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,3%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,8%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,3%	Sim
		$M_{x,Ed}$ = 0,026 kN·m	---	---	---
		$M_{y,Ed}$ = 0,064 kN·m	---	---	---

Nó 312 [+109; +1500; +2645] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
660: CHSH 48.3x3.2 712: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,1%	Sim
Travessas / longarinas					
707: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,010 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,2%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,5%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$M_{x,Ed}$ = 0,048 kN·m	---	---	---
		$M_{y,Ed}$ = 0,124 kN·m	---	---	---
711: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,002 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,3%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,8%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,2%	Sim
		$M_{x,Ed}$ = 0,025 kN·m	---	---	---
		$M_{y,Ed}$ = 0,068 kN·m	---	---	---

Nó 313 [+0; +1500; +2754] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
662: CHSH 48.3x3.2 714: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,1%	Sim
Travessas / longarinas					
709: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,017 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,8%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,3%	Sim
		$M_{x,Ed}$ = 0,026 kN·m	---	---	---
		$M_{y,Ed}$ = 0,213 kN·m	---	---	---
713: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,017 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	8,1%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,1%	Sim
		$M_{x,Ed}$ = 0,009 kN·m	---	---	---
		$M_{y,Ed}$ = 0,220 kN·m	---	---	---

Nó 314 [+109; +1500; +2754] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
663: CHSH 48.3x3.2 715: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,1%	Sim
Travessas / longarinas					
711: CHSH	Acero Tub T02	$M_{z,Ed}$ = 0,005	$M_{z,Rd}$ = 0,600	0,8%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
48.3x3.2		kN·m	kN·m		
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,8%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,2%	Sim
		$M_{x,Ed}$ = 0,025 kN·m	---	---	---
		$M_{y,Ed}$ = 0,215 kN·m	---	---	---
713: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,013 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,2%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	8,1%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,1%	Sim
		$M_{x,Ed}$ = 0,009 kN·m	---	---	---
		$M_{y,Ed}$ = 0,224 kN·m	---	---	---

Nó 315 [+0; +1600; -36] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
666: CHSH 48.3x3.2 718: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 1,0 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	1,6%	Sim
Travessas / longarinas					
716: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,389 kN·m	$M_{z,Rd}$ = 0,600 kN·m	64,8%	Sim
		$V_{y,Ed}$ = 0,7 kN	$V_{y,Rd}$ = 15,0 kN	4,9%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	7,4%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,4%	Sim
		$M_{x,Ed}$ = 0,014 kN·m	---	---	---
		$M_{y,Ed}$ = 0,204 kN·m	---	---	---
717: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,035 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,8%	Sim
		$V_{y,Ed}$ = 0,4 kN	$V_{y,Rd}$ = 15,0 kN	2,9%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	7,2%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,4%	Sim
		$M_{x,Ed}$ = 0,011 kN·m	---	---	---
		$M_{y,Ed}$ = 0,238 kN·m	---	---	---

Nó 316 [+109; +1600; -36] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
668: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,9 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	1,4%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
720: CHSH 48.3x3.2					
Travessas / longarinas					
716: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,389 kN·m	$M_{z,Rd}$ = 0,600 kN·m	64,9%	Sim
		$V_{y,Ed}$ = 0,7 kN	$V_{y,Rd}$ = 15,0 kN	4,9%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	7,4%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,4%	Sim
		$M_{x,Ed}$ = 0,014 kN·m	---	---	---
		$M_{y,Ed}$ = 0,201 kN·m	---	---	---
719: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,021 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,5%	Sim
		$V_{y,Ed}$ = 0,4 kN	$V_{y,Rd}$ = 15,0 kN	2,8%	Sim
		$V_{z,Ed}$ = 0,5 kN	$V_{z,Rd}$ = 5,0 kN	10,3%	Sim
		N_{Ed} = 0,7 kN	N_{Rd} = 20,0 kN	3,5%	Sim
		$M_{x,Ed}$ = 0,018 kN·m	---	---	---
		$M_{y,Ed}$ = 0,261 kN·m	---	---	---
Diagonais					
721: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 0,8 kN	$N_{c,Rd}$ = 7,0 kN	11,3%	Sim
		$N_{t,Ed}$ = 0,5 kN	$N_{t,Rd}$ = 7,0 kN	6,7%	Sim
		$V_{y,Ed}$ = 0,0 kN	---	---	---
		$V_{z,Ed}$ = 0,1 kN	---	---	---
		$M_{x,Ed}$ = 0,005 kN·m	---	---	---
		$M_{y,Ed}$ = 0,075 kN·m	---	---	---
		$M_{z,Ed}$ = 0,010 kN·m	---	---	---

Nó 317 [+0; +1600; +73] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
670: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 1,8 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	2,8%	Sim
724: CHSH 48.3x3.2					
Travessas / longarinas					
717: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,035 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,8%	Sim
		$V_{y,Ed}$ = 0,4 kN	$V_{y,Rd}$ = 15,0 kN	2,9%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	7,2%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,4%	Sim
		$M_{x,Ed}$ = 0,011 kN·m	---	---	---
		$M_{y,Ed}$ = 0,155 kN·m	---	---	---
722: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,410 kN·m	$M_{z,Rd}$ = 0,600 kN·m	68,4%	Sim
		$V_{y,Ed}$ = 1,4 kN	$V_{y,Rd}$ = 15,0 kN	9,2%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$V_{z,Ed}$ = 0,9 kN	$V_{z,Rd}$ = 5,0 kN	18,8%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,3%	Sim
		$M_{x,Ed}$ = 0,014 kN·m	---	---	---
		$M_{y,Ed}$ = 0,496 kN·m	---	---	---
723: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,026 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,0%	Sim
		N_{Ed} = 1,1 kN	N_{Rd} = 20,0 kN	5,7%	Sim
		$M_{x,Ed}$ = 0,008 kN·m	---	---	---
		$M_{y,Ed}$ = 0,244 kN·m	---	---	---

Nó 318 [+109; +1600; +73] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
672: CHSH 48.3x3.2 726: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,8 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	1,3%	Sim
Travessas / longarinas					
719: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,022 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,7%	Sim
		$V_{y,Ed}$ = 0,4 kN	$V_{y,Rd}$ = 15,0 kN	2,8%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,2%	Sim
		N_{Ed} = 0,7 kN	N_{Rd} = 20,0 kN	3,5%	Sim
		$M_{x,Ed}$ = 0,018 kN·m	---	---	---
		$M_{y,Ed}$ = 0,056 kN·m	---	---	---
722: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,414 kN·m	$M_{z,Rd}$ = 0,600 kN·m	69,0%	Sim
		$V_{y,Ed}$ = 1,4 kN	$V_{y,Rd}$ = 15,0 kN	9,4%	Sim
		$V_{z,Ed}$ = 0,9 kN	$V_{z,Rd}$ = 5,0 kN	18,8%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,3%	Sim
		$M_{x,Ed}$ = 0,014 kN·m	---	---	---
		$M_{y,Ed}$ = 0,527 kN·m	---	---	---
725: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,022 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,7 kN	$V_{z,Rd}$ = 5,0 kN	14,1%	Sim
		N_{Ed} = 1,6 kN	N_{Rd} = 20,0 kN	8,2%	Sim
		$M_{x,Ed}$ = 0,007 kN·m	---	---	---
		$M_{y,Ed}$ = 0,436 kN·m	---	---	---
Diagonais					
543: CHSH	Acero D02	$N_{c,Ed}$ = 1,3 kN	$N_{c,Rd}$ = 7,0 kN	18,7%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
48.3x2,3		$N_{t,Ed}$ = 0,0 kN	$N_{t,Rd}$ = 7,0 kN	0,0%	Sim
		$V_{y,Ed}$ = 0,0 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,068 kN·m	---	---	---
		$M_{y,Ed}$ = 0,045 kN·m	---	---	---
		$M_{z,Ed}$ = 0,012 kN·m	---	---	---

Nó 319 [+0; +1600; +330] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
674: CHSH 48.3x3.2 729: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 2,6 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	4,0%	Sim
Travessas / longarinas					
723: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,029 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,0%	Sim
		N_{Ed} = 1,1 kN	N_{Rd} = 20,0 kN	5,7%	Sim
		$M_{x,Ed}$ = 0,008 kN·m	---	---	---
		$M_{y,Ed}$ = 0,266 kN·m	---	---	---
727: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,473 kN·m	$M_{z,Rd}$ = 0,600 kN·m	78,9%	Sim
		$V_{y,Ed}$ = 2,4 kN	$V_{y,Rd}$ = 15,0 kN	16,1%	Sim
		$V_{z,Ed}$ = 0,7 kN	$V_{z,Rd}$ = 5,0 kN	13,1%	Sim
		N_{Ed} = 0,7 kN	N_{Rd} = 20,0 kN	3,4%	Sim
		$M_{x,Ed}$ = 0,012 kN·m	---	---	---
		$M_{y,Ed}$ = 0,344 kN·m	---	---	---
728: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,032 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,2%	Sim
		N_{Ed} = 1,7 kN	N_{Rd} = 20,0 kN	8,5%	Sim
		$M_{x,Ed}$ = 0,012 kN·m	---	---	---
		$M_{y,Ed}$ = 0,050 kN·m	---	---	---

Nó 320 [+109; +1600; +330] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
676: CHSH	Acero R02	$\Sigma V_{y,Ed}$ = 3,1 kN	$\Sigma V_{y,Rd}$ = 65,0	4,8%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
48.3x3.2 731: CHSH 48.3x3.2			kN		
Travessas / longarinas					
725: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,016 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	7,6%	Sim
		N_{Ed} = 1,6 kN	N_{Rd} = 20,0 kN	8,2%	Sim
		$M_{x,Ed}$ = 0,007 kN·m	---	---	---
		$M_{y,Ed}$ = 0,018 kN·m	---	---	---
727: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,472 kN·m	$M_{z,Rd}$ = 0,600 kN·m	78,6%	Sim
		$V_{y,Ed}$ = 2,4 kN	$V_{y,Rd}$ = 15,0 kN	16,2%	Sim
		$V_{z,Ed}$ = 0,7 kN	$V_{z,Rd}$ = 5,0 kN	13,1%	Sim
		N_{Ed} = 0,7 kN	N_{Rd} = 20,0 kN	3,4%	Sim
		$M_{x,Ed}$ = 0,012 kN·m	---	---	---
		$M_{y,Ed}$ = 0,370 kN·m	---	---	---
730: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,024 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,6 kN	$V_{z,Rd}$ = 5,0 kN	12,7%	Sim
		N_{Ed} = 2,7 kN	N_{Rd} = 20,0 kN	13,5%	Sim
		$M_{x,Ed}$ = 0,013 kN·m	---	---	---
		$M_{y,Ed}$ = 0,276 kN·m	---	---	---
Diagonais					
559: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 0,0 kN	$N_{c,Rd}$ = 7,0 kN	0,0%	Sim
		$N_{t,Ed}$ = 0,9 kN	$N_{t,Rd}$ = 7,0 kN	12,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,042 kN·m	---	---	---
		$M_{y,Ed}$ = 0,028 kN·m	---	---	---
		$M_{z,Ed}$ = 0,038 kN·m	---	---	---

Nó 321 [+0; +1600; +637] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
678: CHSH 48.3x3.2 734: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 2,6 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	4,0%	Sim
Travessas / longarinas					
728: CHSH	Acero Tub T02	$M_{z,Ed}$ = 0,037 kN·m	$M_{z,Rd}$ = 0,600 kN·m	6,1%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
48.3x3.2		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,2%	Sim
		N_{Ed} = 1,7 kN	N_{Rd} = 20,0 kN	8,5%	Sim
		$M_{x,Ed}$ = 0,012 kN·m	---	---	---
		$M_{y,Ed}$ = 0,026 kN·m	---	---	---
732: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,510 kN·m	$M_{z,Rd}$ = 0,600 kN·m	85,1%	Sim
		$V_{y,Ed}$ = 2,5 kN	$V_{y,Rd}$ = 15,0 kN	16,4%	Sim
		$V_{z,Ed}$ = 0,5 kN	$V_{z,Rd}$ = 5,0 kN	10,5%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	3,2%	Sim
		$M_{x,Ed}$ = 0,017 kN·m	---	---	---
		$M_{y,Ed}$ = 0,274 kN·m	---	---	---
733: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,026 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,8%	Sim
		N_{Ed} = 1,2 kN	N_{Rd} = 20,0 kN	5,9%	Sim
		$M_{x,Ed}$ = 0,056 kN·m	---	---	---
		$M_{y,Ed}$ = 0,207 kN·m	---	---	---

Nó 322 [+109; +1600; +637] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
680: CHSH 48.3x3.2 736: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 2,4 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	3,7%	Sim
Travessas / longarinas					
730: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,022 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,7 kN	$V_{z,Rd}$ = 5,0 kN	13,1%	Sim
		N_{Ed} = 2,7 kN	N_{Rd} = 20,0 kN	13,5%	Sim
		$M_{x,Ed}$ = 0,013 kN·m	---	---	---
		$M_{y,Ed}$ = 0,309 kN·m	---	---	---
732: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,517 kN·m	$M_{z,Rd}$ = 0,600 kN·m	86,2%	Sim
		$V_{y,Ed}$ = 2,5 kN	$V_{y,Rd}$ = 15,0 kN	16,5%	Sim
		$V_{z,Ed}$ = 0,5 kN	$V_{z,Rd}$ = 5,0 kN	10,5%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	3,2%	Sim
		$M_{x,Ed}$ = 0,017 kN·m	---	---	---
		$M_{y,Ed}$ = 0,297 kN·m	---	---	---
735: CHSH	Acero Tub T02	$M_{z,Ed}$ = 0,021	$M_{z,Rd}$ = 0,600	3,5%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
48.3x3.2		kN·m	kN·m		
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	8,5%	Sim
		N_{Ed} = 1,7 kN	N_{Rd} = 20,0 kN	8,6%	Sim
		$M_{x,Ed}$ = 0,061 kN·m	---	---	---
		$M_{y,Ed}$ = 0,065 kN·m	---	---	---
Diagonais					
737: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 0,3 kN	$N_{c,Rd}$ = 7,0 kN	4,0%	Sim
		$N_{t,Ed}$ = 0,6 kN	$N_{t,Rd}$ = 7,0 kN	8,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,017 kN·m	---	---	---
		$M_{y,Ed}$ = 0,048 kN·m	---	---	---
		$M_{z,Ed}$ = 0,037 kN·m	---	---	---

Nó 323 [+0; +1600; +894] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
682: CHSH 48.3x3.2 740: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 2,4 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	3,7%	Sim
Travessas / longarinas					
733: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,031 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,1%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,8%	Sim
		N_{Ed} = 1,2 kN	N_{Rd} = 20,0 kN	5,9%	Sim
		$M_{x,Ed}$ = 0,056 kN·m	---	---	---
		$M_{y,Ed}$ = 0,152 kN·m	---	---	---
738: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,343 kN·m	$M_{z,Rd}$ = 0,600 kN·m	57,1%	Sim
		$V_{y,Ed}$ = 2,3 kN	$V_{y,Rd}$ = 15,0 kN	15,1%	Sim
		$V_{z,Ed}$ = 1,1 kN	$V_{z,Rd}$ = 5,0 kN	22,8%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	3,1%	Sim
		$M_{x,Ed}$ = 0,013 kN·m	---	---	---
		$M_{y,Ed}$ = 0,627 kN·m	---	---	---
739: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,032 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,3%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,4%	Sim
		$M_{x,Ed}$ = 0,071 kN·m	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$M_{y,Ed}$ = 0,281 kN·m	---	---	---

Nó 324 [+109; +1600; +894] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
684: CHSH 48.3x3.2 742: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 3,4 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	5,2%	Sim
Travessas / longarinas					
735: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,016 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,7 kN	$V_{z,Rd}$ = 5,0 kN	13,4%	Sim
		N_{Ed} = 1,7 kN	N_{Rd} = 20,0 kN	8,6%	Sim
		$M_{x,Ed}$ = 0,061 kN·m	---	---	---
		$M_{y,Ed}$ = 0,381 kN·m	---	---	---
738: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,335 kN·m	$M_{z,Rd}$ = 0,600 kN·m	55,8%	Sim
		$V_{y,Ed}$ = 2,3 kN	$V_{y,Rd}$ = 15,0 kN	15,1%	Sim
		$V_{z,Ed}$ = 1,1 kN	$V_{z,Rd}$ = 5,0 kN	22,8%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	3,1%	Sim
		$M_{x,Ed}$ = 0,013 kN·m	---	---	---
		$M_{y,Ed}$ = 0,617 kN·m	---	---	---
741: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,024 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	8,9%	Sim
		N_{Ed} = 2,3 kN	N_{Rd} = 20,0 kN	11,4%	Sim
		$M_{x,Ed}$ = 0,068 kN·m	---	---	---
		$M_{y,Ed}$ = 0,066 kN·m	---	---	---
Diagonais					
570: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 0,9 kN	$N_{c,Rd}$ = 7,0 kN	13,2%	Sim
		$N_{t,Ed}$ = 2,1 kN	$N_{t,Rd}$ = 7,0 kN	30,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	---	---	---
		$V_{z,Ed}$ = 0,1 kN	---	---	---
		$M_{x,Ed}$ = 0,048 kN·m	---	---	---
		$M_{y,Ed}$ = 0,127 kN·m	---	---	---
		$M_{z,Ed}$ = 0,036 kN·m	---	---	---

Nó 325 [+0; +1600; +1201] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
686: CHSH 48.3x3.2 745: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 3,0 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	4,6%	Sim
Travessas / longarinas					
739: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,037 kN·m	$M_{z,Rd}$ = 0,600 kN·m	6,1%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,3%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,4%	Sim
		$M_{x,Ed}$ = 0,071 kN·m	---	---	---
		$M_{y,Ed}$ = 0,372 kN·m	---	---	---
743: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,118 kN·m	$M_{z,Rd}$ = 0,600 kN·m	19,7%	Sim
		$V_{y,Ed}$ = 2,2 kN	$V_{y,Rd}$ = 15,0 kN	14,4%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 5,0 kN	5,3%	Sim
		N_{Ed} = 2,7 kN	N_{Rd} = 20,0 kN	13,5%	Sim
		$M_{x,Ed}$ = 0,015 kN·m	---	---	---
		$M_{y,Ed}$ = 0,147 kN·m	---	---	---
744: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,055 kN·m	$M_{z,Rd}$ = 0,600 kN·m	9,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,7%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 5,0 kN	5,7%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,7%	Sim
		$M_{x,Ed}$ = 0,072 kN·m	---	---	---
		$M_{y,Ed}$ = 0,477 kN·m	---	---	---
Diagonais					
571: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 2,6 kN	$N_{c,Rd}$ = 7,0 kN	37,7%	Sim
		$N_{t,Ed}$ = 1,5 kN	$N_{t,Rd}$ = 7,0 kN	22,1%	Sim
		$V_{y,Ed}$ = 0,0 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,005 kN·m	---	---	---
		$M_{y,Ed}$ = 0,036 kN·m	---	---	---
		$M_{z,Ed}$ = 0,009 kN·m	---	---	---

Nó 326 [+109; +1600; +1201] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
688: CHSH 48.3x3.2 747: CHSH 48.3x3.2	Acero R01	$\Sigma V_{y,Ed}$ = 10,4 kN	$\Sigma V_{y,Rd}$ = 100,0 kN	10,4%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Travessas / longarinas					
741: CHSH 48.3x3.2	Acero Tub T01	$M_{z,Ed}$ = 0,024 kN·m	$M_{z,Rd}$ = 1,000 kN·m	2,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 25,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,9 kN	$V_{z,Rd}$ = 8,0 kN	10,7%	Sim
		N_{Ed} = 2,3 kN	N_{Rd} = 30,0 kN	7,6%	Sim
		$M_{x,Ed}$ = 0,068 kN·m	---	---	---
		$M_{y,Ed}$ = 0,700 kN·m	---	---	---
743: CHSH 48.3x3.2	Acero Tub T01	$M_{z,Ed}$ = 0,115 kN·m	$M_{z,Rd}$ = 1,000 kN·m	11,5%	Sim
		$V_{y,Ed}$ = 2,2 kN	$V_{y,Rd}$ = 25,0 kN	8,6%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 8,0 kN	3,3%	Sim
		N_{Ed} = 2,7 kN	N_{Rd} = 30,0 kN	9,0%	Sim
		$M_{x,Ed}$ = 0,015 kN·m	---	---	---
		$M_{y,Ed}$ = 0,142 kN·m	---	---	---
746: CHSH 48.3x3.2	Acero Tub T01	$M_{z,Ed}$ = 0,036 kN·m	$M_{z,Rd}$ = 1,000 kN·m	3,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 25,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,9 kN	$V_{z,Rd}$ = 8,0 kN	11,5%	Sim
		N_{Ed} = 1,2 kN	N_{Rd} = 30,0 kN	3,9%	Sim
		$M_{x,Ed}$ = 0,071 kN·m	---	---	---
		$M_{y,Ed}$ = 0,803 kN·m	---	---	---
Diagonais					
748: CHSH 48.3x2,3	Acero D01	$N_{c,Ed}$ = 1,4 kN	$N_{c,Rd}$ = 8,3 kN	16,7%	Sim
		$N_{t,Ed}$ = 2,2 kN	$N_{t,Rd}$ = 17,0 kN	13,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,040 kN·m	---	---	---
		$M_{y,Ed}$ = 0,021 kN·m	---	---	---
		$M_{z,Ed}$ = 0,040 kN·m	---	---	---
749: CHSH 48.3x2,3	Acero D01	$N_{c,Ed}$ = 11,0 kN	$N_{c,Rd}$ = 15,0 kN	73,6%	Sim
		$N_{t,Ed}$ = 9,6 kN	$N_{t,Rd}$ = 17,0 kN	56,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,005 kN·m	---	---	---
		$M_{y,Ed}$ = 0,016 kN·m	---	---	---
		$M_{z,Ed}$ = 0,018 kN·m	---	---	---

Nó 327 [+0; +1600; +1508] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
690: CHSH 48.3x3.2 752: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 2,5 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	3,8%	Sim
Travessas / longarinas					
744: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,019 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 5,0 kN	5,7%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,7%	Sim
		$M_{x,Ed}$ = 0,072 kN·m	---	---	---
		$M_{y,Ed}$ = 0,394 kN·m	---	---	---
750: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,306 kN·m	$M_{z,Rd}$ = 0,600 kN·m	51,1%	Sim
		$V_{y,Ed}$ = 2,4 kN	$V_{y,Rd}$ = 15,0 kN	15,7%	Sim
		$V_{z,Ed}$ = 1,6 kN	$V_{z,Rd}$ = 5,0 kN	32,5%	Sim
		N_{Ed} = 0,7 kN	N_{Rd} = 20,0 kN	3,7%	Sim
		$M_{x,Ed}$ = 0,012 kN·m	---	---	---
		$M_{y,Ed}$ = 0,877 kN·m	---	---	---
751: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,026 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,9%	Sim
		N_{Ed} = 1,9 kN	N_{Rd} = 20,0 kN	9,6%	Sim
		$M_{x,Ed}$ = 0,049 kN·m	---	---	---
		$M_{y,Ed}$ = 0,192 kN·m	---	---	---

Nó 328 [+109; +1600; +1508] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
692: CHSH 48.3x3.2 754: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,7 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	1,1%	Sim
Travessas / longarinas					
746: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,016 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	7,6%	Sim
		N_{Ed} = 1,2 kN	N_{Rd} = 20,0 kN	5,8%	Sim
		$M_{x,Ed}$ = 0,071 kN·m	---	---	---
		$M_{y,Ed}$ = 0,055 kN·m	---	---	---
750: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,389 kN·m	$M_{z,Rd}$ = 0,600 kN·m	64,8%	Sim
		$V_{y,Ed}$ = 2,5 kN	$V_{y,Rd}$ = 15,0 kN	16,9%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$V_{z,Ed}$ = 1,6 kN	$V_{z,Rd}$ = 5,0 kN	32,5%	Sim
		N_{Ed} = 0,7 kN	N_{Rd} = 20,0 kN	3,7%	Sim
		$M_{x,Ed}$ = 0,012 kN·m	---	---	---
		$M_{y,Ed}$ = 0,896 kN·m	---	---	---
753: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,021 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,8 kN	$V_{z,Rd}$ = 5,0 kN	15,4%	Sim
		N_{Ed} = 3,1 kN	N_{Rd} = 20,0 kN	15,7%	Sim
		$M_{x,Ed}$ = 0,050 kN·m	---	---	---
		$M_{y,Ed}$ = 0,497 kN·m	---	---	---
Diagonais					
582: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 4,0 kN	$N_{c,Rd}$ = 7,0 kN	57,5%	Sim
		$N_{t,Ed}$ = 0,0 kN	$N_{t,Rd}$ = 7,0 kN	0,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	---	---	---
		$V_{z,Ed}$ = 0,1 kN	---	---	---
		$M_{x,Ed}$ = 0,027 kN·m	---	---	---
		$M_{y,Ed}$ = 0,067 kN·m	---	---	---
		$M_{z,Ed}$ = 0,033 kN·m	---	---	---

Nó 329 [+0; +1600; +1815] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
694: CHSH 48.3x3.2 757: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 2,8 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	4,3%	Sim
Travessas / longarinas					
751: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,048 kN·m	$M_{z,Rd}$ = 0,600 kN·m	8,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,9%	Sim
		N_{Ed} = 1,9 kN	N_{Rd} = 20,0 kN	9,6%	Sim
		$M_{x,Ed}$ = 0,049 kN·m	---	---	---
		$M_{y,Ed}$ = 0,258 kN·m	---	---	---
755: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,511 kN·m	$M_{z,Rd}$ = 0,600 kN·m	85,1%	Sim
		$V_{y,Ed}$ = 2,6 kN	$V_{y,Rd}$ = 15,0 kN	17,4%	Sim
		$V_{z,Ed}$ = 0,6 kN	$V_{z,Rd}$ = 5,0 kN	12,8%	Sim
		N_{Ed} = 0,7 kN	N_{Rd} = 20,0 kN	3,5%	Sim
		$M_{x,Ed}$ = 0,017 kN·m	---	---	---
		$M_{y,Ed}$ = 0,334 kN·m	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
756: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,029 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,2%	Sim
		N_{Ed} = 2,5 kN	N_{Rd} = 20,0 kN	12,5%	Sim
		$M_{x,Ed}$ = 0,016 kN·m	---	---	---
		$M_{y,Ed}$ = 0,040 kN·m	---	---	---

Nó 330 [+109; +1600; +1815] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
696: CHSH 48.3x3.2 759: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 4,2 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	6,4%	Sim
Travessas / longarinas					
753: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,024 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,5 kN	$V_{z,Rd}$ = 5,0 kN	10,6%	Sim
		N_{Ed} = 3,1 kN	N_{Rd} = 20,0 kN	15,7%	Sim
		$M_{x,Ed}$ = 0,050 kN·m	---	---	---
		$M_{y,Ed}$ = 0,123 kN·m	---	---	---
755: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,539 kN·m	$M_{z,Rd}$ = 0,600 kN·m	89,8%	Sim
		$V_{y,Ed}$ = 2,7 kN	$V_{y,Rd}$ = 15,0 kN	17,8%	Sim
		$V_{z,Ed}$ = 0,6 kN	$V_{z,Rd}$ = 5,0 kN	12,8%	Sim
		N_{Ed} = 0,7 kN	N_{Rd} = 20,0 kN	3,5%	Sim
		$M_{x,Ed}$ = 0,017 kN·m	---	---	---
		$M_{y,Ed}$ = 0,362 kN·m	---	---	---
758: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,021 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,7 kN	$V_{z,Rd}$ = 5,0 kN	13,2%	Sim
		N_{Ed} = 2,1 kN	N_{Rd} = 20,0 kN	10,7%	Sim
		$M_{x,Ed}$ = 0,016 kN·m	---	---	---
		$M_{y,Ed}$ = 0,313 kN·m	---	---	---
Diagonais					
760: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 2,3 kN	$N_{c,Rd}$ = 7,0 kN	33,3%	Sim
		$N_{t,Ed}$ = 0,0 kN	$N_{t,Rd}$ = 7,0 kN	0,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,026 kN·m	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$M_{y,Ed}$ = 0,067 kN·m	---	---	---
		$M_{z,Ed}$ = 0,040 kN·m	---	---	---

Nó 331 [+0; +1600; +2122] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
698: CHSH 48.3x3.2 763: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 2,0 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	3,1%	Sim
Travessas / longarinas					
756: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,051 kN·m	$M_{z,Rd}$ = 0,600 kN·m	8,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,7%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,2%	Sim
		N_{Ed} = 2,5 kN	N_{Rd} = 20,0 kN	12,5%	Sim
		$M_{x,Ed}$ = 0,016 kN·m	---	---	---
		$M_{y,Ed}$ = 0,025 kN·m	---	---	---
761: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,457 kN·m	$M_{z,Rd}$ = 0,600 kN·m	76,1%	Sim
		$V_{y,Ed}$ = 1,9 kN	$V_{y,Rd}$ = 15,0 kN	12,9%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	8,1%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,5%	Sim
		$M_{x,Ed}$ = 0,016 kN·m	---	---	---
		$M_{y,Ed}$ = 0,185 kN·m	---	---	---
762: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,019 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,1%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,1%	Sim
		N_{Ed} = 2,2 kN	N_{Rd} = 20,0 kN	11,1%	Sim
		$M_{x,Ed}$ = 0,029 kN·m	---	---	---
		$M_{y,Ed}$ = 0,146 kN·m	---	---	---

Nó 332 [+109; +1600; +2122] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
700: CHSH 48.3x3.2 765: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,8 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	1,2%	Sim
Travessas / longarinas					
758: CHSH	Acero Tub T02	$M_{z,Ed}$ = 0,028	$M_{z,Rd}$ = 0,600	4,6%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
48.3x3.2		kN·m	kN·m		
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,6 kN	$V_{z,Rd}$ = 5,0 kN	12,7%	Sim
		N_{Ed} = 2,1 kN	N_{Rd} = 20,0 kN	10,7%	Sim
		$M_{x,Ed}$ = 0,016 kN·m	---	---	---
		$M_{y,Ed}$ = 0,277 kN·m	---	---	---
761: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,456 kN·m	$M_{z,Rd}$ = 0,600 kN·m	76,0%	Sim
		$V_{y,Ed}$ = 1,9 kN	$V_{y,Rd}$ = 15,0 kN	12,8%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	8,1%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,5%	Sim
		$M_{x,Ed}$ = 0,016 kN·m	---	---	---
		$M_{y,Ed}$ = 0,257 kN·m	---	---	---
764: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,001 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,2%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	3,5%	Sim
		N_{Ed} = 2,3 kN	N_{Rd} = 20,0 kN	11,4%	Sim
		$M_{x,Ed}$ = 0,040 kN·m	---	---	---
		$M_{y,Ed}$ = 0,034 kN·m	---	---	---
Diagonais					
766: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 0,2 kN	$N_{c,Rd}$ = 7,0 kN	2,4%	Sim
		$N_{t,Ed}$ = 1,5 kN	$N_{t,Rd}$ = 7,0 kN	21,7%	Sim
		$V_{y,Ed}$ = 0,0 kN	---	---	---
		$V_{z,Ed}$ = 0,1 kN	---	---	---
		$M_{x,Ed}$ = 0,023 kN·m	---	---	---
		$M_{y,Ed}$ = 0,082 kN·m	---	---	---
		$M_{z,Ed}$ = 0,009 kN·m	---	---	---

Nó 333 [+0; +1600; +2231] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
702: CHSH 48.3x3.2 769: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 1,7 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	2,5%	Sim
Travessas / longarinas					
762: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,024 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,1%	Sim
		N_{Ed} = 2,2 kN	N_{Rd} = 20,0 kN	11,1%	Sim
		$M_{x,Ed}$ = 0,029 kN·m	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$M_{y,Ed}$ = 0,078 kN·m	---	---	---
767: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,403 kN·m	$M_{z,Rd}$ = 0,600 kN·m	67,1%	Sim
		$V_{y,Ed}$ = 1,5 kN	$V_{y,Rd}$ = 15,0 kN	10,3%	Sim
		$V_{z,Ed}$ = 0,5 kN	$V_{z,Rd}$ = 5,0 kN	9,8%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,6%	Sim
		$M_{x,Ed}$ = 0,018 kN·m	---	---	---
		$M_{y,Ed}$ = 0,282 kN·m	---	---	---
768: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,023 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,8%	Sim
		N_{Ed} = 1,9 kN	N_{Rd} = 20,0 kN	9,3%	Sim
		$M_{x,Ed}$ = 0,057 kN·m	---	---	---
		$M_{y,Ed}$ = 0,163 kN·m	---	---	---

Nó 334 [+109; +1600; +2231] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
704: CHSH 48.3x3.2 771: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 3,0 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	4,6%	Sim
Travessas / longarinas					
764: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,004 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,7%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 5,0 kN	6,3%	Sim
		N_{Ed} = 2,3 kN	N_{Rd} = 20,0 kN	11,4%	Sim
		$M_{x,Ed}$ = 0,040 kN·m	---	---	---
		$M_{y,Ed}$ = 0,106 kN·m	---	---	---
767: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,388 kN·m	$M_{z,Rd}$ = 0,600 kN·m	64,6%	Sim
		$V_{y,Ed}$ = 1,5 kN	$V_{y,Rd}$ = 15,0 kN	10,1%	Sim
		$V_{z,Ed}$ = 0,5 kN	$V_{z,Rd}$ = 5,0 kN	9,8%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,6%	Sim
		$M_{x,Ed}$ = 0,018 kN·m	---	---	---
		$M_{y,Ed}$ = 0,253 kN·m	---	---	---
770: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,011 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 5,0 kN	6,0%	Sim
		N_{Ed} = 1,8 kN	N_{Rd} = 20,0 kN	9,0%	Sim
		$M_{x,Ed}$ = 0,056	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		kN·m			
		$M_{y,Ed}$ = 0,043 kN·m	---	---	---
Diagonais					
588: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 0,0 kN	$N_{c,Rd}$ = 7,0 kN	0,0%	Sim
		$N_{t,Ed}$ = 1,6 kN	$N_{t,Rd}$ = 7,0 kN	22,9%	Sim
		$V_{y,Ed}$ = 0,0 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,059 kN·m	---	---	---
		$M_{y,Ed}$ = 0,023 kN·m	---	---	---
		$M_{z,Ed}$ = 0,007 kN·m	---	---	---

Nó 335 [+0; +1600; +2438] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
706: CHSH 48.3x3.2 774: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 1,8 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	2,8%	Sim
Travessas / longarinas					
768: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,024 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,8%	Sim
		N_{Ed} = 1,9 kN	N_{Rd} = 20,0 kN	9,3%	Sim
		$M_{x,Ed}$ = 0,057 kN·m	---	---	---
		$M_{y,Ed}$ = 0,125 kN·m	---	---	---
772: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,271 kN·m	$M_{z,Rd}$ = 0,600 kN·m	45,1%	Sim
		$V_{y,Ed}$ = 1,7 kN	$V_{y,Rd}$ = 15,0 kN	11,4%	Sim
		$V_{z,Ed}$ = 1,0 kN	$V_{z,Rd}$ = 5,0 kN	19,3%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,5%	Sim
		$M_{x,Ed}$ = 0,018 kN·m	---	---	---
		$M_{y,Ed}$ = 0,524 kN·m	---	---	---
773: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,021 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 5,0 kN	5,3%	Sim
		N_{Ed} = 1,1 kN	N_{Rd} = 20,0 kN	5,4%	Sim
		$M_{x,Ed}$ = 0,058 kN·m	---	---	---
		$M_{y,Ed}$ = 0,273 kN·m	---	---	---

Nó 336 [+109; +1600; +2438] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
708: CHSH 48.3x3.2 776: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 1,8 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	2,8%	Sim
Travessas / longarinas					
770: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,009 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,6 kN	$V_{z,Rd}$ = 5,0 kN	11,8%	Sim
		N_{Ed} = 1,8 kN	N_{Rd} = 20,0 kN	9,0%	Sim
		$M_{x,Ed}$ = 0,056 kN·m	---	---	---
		$M_{y,Ed}$ = 0,285 kN·m	---	---	---
772: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,270 kN·m	$M_{z,Rd}$ = 0,600 kN·m	44,9%	Sim
		$V_{y,Ed}$ = 1,7 kN	$V_{y,Rd}$ = 15,0 kN	11,4%	Sim
		$V_{z,Ed}$ = 1,0 kN	$V_{z,Rd}$ = 5,0 kN	19,3%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,5%	Sim
		$M_{x,Ed}$ = 0,018 kN·m	---	---	---
		$M_{y,Ed}$ = 0,528 kN·m	---	---	---
775: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,011 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,2%	Sim
		N_{Ed} = 0,9 kN	N_{Rd} = 20,0 kN	4,6%	Sim
		$M_{x,Ed}$ = 0,057 kN·m	---	---	---
		$M_{y,Ed}$ = 0,114 kN·m	---	---	---

Nó 337 [+0; +1600; +2645] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
710: CHSH 48.3x3.2 779: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 1,3 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	2,0%	Sim
Travessas / longarinas					
773: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,028 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 5,0 kN	5,3%	Sim
		N_{Ed} = 1,1 kN	N_{Rd} = 20,0 kN	5,4%	Sim
		$M_{x,Ed}$ = 0,058 kN·m	---	---	---
		$M_{y,Ed}$ = 0,271 kN·m	---	---	---
777: CHSH	Acero Tub T02	$M_{z,Ed}$ = 0,115 kN·m	$M_{z,Rd}$ = 0,600 kN·m	19,2%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
48.3x3.2		$V_{y,Ed}$ = 1,2 kN	$V_{y,Rd}$ = 15,0 kN	8,1%	Sim
		$V_{z,Ed}$ = 1,0 kN	$V_{z,Rd}$ = 5,0 kN	19,9%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	1,9%	Sim
		$M_{x,Ed}$ = 0,018 kN·m	---	---	---
		$M_{y,Ed}$ = 0,536 kN·m	---	---	---
778: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,024 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,1%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	8,0%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,4%	Sim
		$M_{x,Ed}$ = 0,044 kN·m	---	---	---
		$M_{v,Ed}$ = 0,167 kN·m	---	---	---

Nó 338 [+109; +1600; +2645] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
712: CHSH 48.3x3.2 781: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,4 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,7%	Sim
Travessas / longarinas					
775: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,010 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,7 kN	$V_{z,Rd}$ = 5,0 kN	13,7%	Sim
		N_{Ed} = 0,9 kN	N_{Rd} = 20,0 kN	4,6%	Sim
		$M_{x,Ed}$ = 0,057 kN·m	---	---	---
		$M_{v,Ed}$ = 0,407 kN·m	---	---	---
777: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,118 kN·m	$M_{z,Rd}$ = 0,600 kN·m	19,6%	Sim
		$V_{y,Ed}$ = 1,2 kN	$V_{y,Rd}$ = 15,0 kN	8,2%	Sim
		$V_{z,Ed}$ = 1,0 kN	$V_{z,Rd}$ = 5,0 kN	19,9%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	1,9%	Sim
		$M_{x,Ed}$ = 0,018 kN·m	---	---	---
		$M_{y,Ed}$ = 0,547 kN·m	---	---	---
780: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,001 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,1%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,0%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	1,8%	Sim
		$M_{x,Ed}$ = 0,051 kN·m	---	---	---
		$M_{y,Ed}$ = 0,088 kN·m	---	---	---
Diagonais					

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
782: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 0,1 kN	$N_{c,Rd}$ = 7,0 kN	0,8%	Sim
		$N_{t,Ed}$ = 1,3 kN	$N_{t,Rd}$ = 7,0 kN	18,2%	Sim
		$V_{y,Ed}$ = 0,0 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,027 kN·m	---	---	---
		$M_{y,Ed}$ = 0,018 kN·m	---	---	---
		$M_{z,Ed}$ = 0,008 kN·m	---	---	---

Nó 339 [+0; +1600; +2754] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
714: CHSH 48.3x3.2 784: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,5 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,8%	Sim
Travessas / longarinas					
778: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,029 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	8,0%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,4%	Sim
		$M_{x,Ed}$ = 0,044 kN·m	---	---	---
		$M_{y,Ed}$ = 0,269 kN·m	---	---	---
783: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,032 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,4%	Sim
		$V_{y,Ed}$ = 0,4 kN	$V_{y,Rd}$ = 15,0 kN	2,8%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	8,9%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,6%	Sim
		$M_{x,Ed}$ = 0,019 kN·m	---	---	---
		$M_{y,Ed}$ = 0,235 kN·m	---	---	---

Nó 340 [+109; +1600; +2754] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
715: CHSH 48.3x3.2 785: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 1,3 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	2,0%	Sim
Travessas / longarinas					
780: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,003 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,6%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,6 kN	$V_{z,Rd}$ = 5,0 kN	11,1%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	1,8%	Sim
		$M_{x,Ed}$ = 0,051 kN·m	---	---	---
		$M_{y,Ed}$ = 0,268 kN·m	---	---	---
783: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,042 kN·m	$M_{z,Rd}$ = 0,600 kN·m	7,0%	Sim
		$V_{y,Ed}$ = 0,4 kN	$V_{y,Rd}$ = 15,0 kN	3,0%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	8,9%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,6%	Sim
		$M_{x,Ed}$ = 0,019 kN·m	---	---	---
		$M_{y,Ed}$ = 0,251 kN·m	---	---	---
Diagonais					
605: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 0,2 kN	$N_{c,Rd}$ = 7,0 kN	2,5%	Sim
		$N_{t,Ed}$ = 1,2 kN	$N_{t,Rd}$ = 7,0 kN	16,4%	Sim
		$V_{y,Ed}$ = 0,0 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,027 kN·m	---	---	---
		$M_{y,Ed}$ = 0,021 kN·m	---	---	---
		$M_{z,Ed}$ = 0,008 kN·m	---	---	---
611: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 1,4 kN	$N_{c,Rd}$ = 7,0 kN	20,5%	Sim
		$N_{t,Ed}$ = 1,2 kN	$N_{t,Rd}$ = 7,0 kN	16,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,010 kN·m	---	---	---
		$M_{y,Ed}$ = 0,024 kN·m	---	---	---
		$M_{z,Ed}$ = 0,035 kN·m	---	---	---

Nó 341 [+0; +1650; -36] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
718: CHSH 48.3x3.2 788: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,8 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	1,3%	Sim
Travessas / longarinas					
786: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,445 kN·m	$M_{z,Rd}$ = 0,600 kN·m	74,2%	Sim
		$V_{y,Ed}$ = 0,8 kN	$V_{y,Rd}$ = 15,0 kN	5,6%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,7%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,3%	Sim
		$M_{x,Ed}$ = 0,015 kN·m	---	---	---
		$M_{y,Ed}$ = 0,127 kN·m	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
787: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,019 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,6%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	1,9%	Sim
		$M_{x,Ed}$ = 0,061 kN·m	---	---	---
		$M_{y,Ed}$ = 0,133 kN·m	---	---	---

Nó 342 [+109; +1650; -36] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
720: CHSH 48.3x3.2 790: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,9 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	1,3%	Sim
Travessas / longarinas					
786: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,441 kN·m	$M_{z,Rd}$ = 0,600 kN·m	73,6%	Sim
		$V_{y,Ed}$ = 0,8 kN	$V_{y,Rd}$ = 15,0 kN	5,5%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,7%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,3%	Sim
		$M_{x,Ed}$ = 0,015 kN·m	---	---	---
		$M_{y,Ed}$ = 0,129 kN·m	---	---	---
789: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,005 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,8%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,7%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,1%	Sim
		$M_{x,Ed}$ = 0,063 kN·m	---	---	---
		$M_{y,Ed}$ = 0,140 kN·m	---	---	---

Nó 343 [+0; +1650; +73] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
724: CHSH 48.3x3.2 792: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
787: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,023 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,6%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	1,9%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$M_{x,Ed}$ = 0,061 kN·m	---	---	---
		$M_{y,Ed}$ = 0,048 kN·m	---	---	---
791: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,023 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,4%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,1%	Sim
		$M_{x,Ed}$ = 0,009 kN·m	---	---	---
		$M_{y,Ed}$ = 0,142 kN·m	---	---	---

Nó 344 [+109; +1650; +73] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
726: CHSH 48.3x3.2 794: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
789: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,003 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,5%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,7%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,1%	Sim
		$M_{x,Ed}$ = 0,063 kN·m	---	---	---
		$M_{y,Ed}$ = 0,048 kN·m	---	---	---
793: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,024 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,2%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,5%	Sim
		$M_{x,Ed}$ = 0,010 kN·m	---	---	---
		$M_{y,Ed}$ = 0,129 kN·m	---	---	---

Nó 345 [+0; +1650; +330] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
729: CHSH 48.3x3.2 796: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
791: CHSH	Acero Tub T02	$M_{z,Ed}$ = 0,031	$M_{z,Rd}$ = 0,600	5,2%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
48.3x3.2		kN·m	kN·m		
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,4%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,1%	Sim
		$M_{x,Ed}$ = 0,009 kN·m	---	---	---
		$M_{y,Ed}$ = 0,162 kN·m	---	---	---
795: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,031 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,7%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,5%	Sim
		$M_{x,Ed}$ = 0,021 kN·m	---	---	---
		$M_{y,Ed}$ = 0,105 kN·m	---	---	---

Nó 346 [+109; +1650; +330] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
731: CHSH 48.3x3.2 798: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
793: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,014 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,2%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,5%	Sim
		$M_{x,Ed}$ = 0,010 kN·m	---	---	---
		$M_{y,Ed}$ = 0,151 kN·m	---	---	---
797: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,027 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,7%	Sim
		N_{Ed} = 0,7 kN	N_{Rd} = 20,0 kN	3,3%	Sim
		$M_{x,Ed}$ = 0,022 kN·m	---	---	---
		$M_{y,Ed}$ = 0,108 kN·m	---	---	---

Nó 347 [+0; +1650; +637] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
734: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
800: CHSH 48.3x3.2					
Travessas / longarinas					
795: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,040 kN·m	$M_{z,Rd}$ = 0,600 kN·m	6,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,7%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,5%	Sim
		$M_{x,Ed}$ = 0,021 kN·m	---	---	---
		$M_{y,Ed}$ = 0,006 kN·m	---	---	---
799: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,025 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,3%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,6%	Sim
		$M_{x,Ed}$ = 0,077 kN·m	---	---	---
		$M_{y,Ed}$ = 0,050 kN·m	---	---	---

Nó 348 [+109; +1650; +637] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
736: CHSH 48.3x3.2 802: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
797: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,023 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,7%	Sim
		N_{Ed} = 0,7 kN	N_{Rd} = 20,0 kN	3,3%	Sim
		$M_{x,Ed}$ = 0,022 kN·m	---	---	---
		$M_{y,Ed}$ = 0,005 kN·m	---	---	---
801: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,020 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,2%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	3,0%	Sim
		$M_{x,Ed}$ = 0,076 kN·m	---	---	---
		$M_{y,Ed}$ = 0,042 kN·m	---	---	---

Nó 349 [+0; +1650; +894] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
740: CHSH 48.3x3.2 804: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
799: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,034 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,3%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,6%	Sim
		$M_{x,Ed}$ = 0,077 kN·m	---	---	---
		$M_{y,Ed}$ = 0,016 kN·m	---	---	---
803: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,032 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,6%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,7%	Sim
		$M_{x,Ed}$ = 0,107 kN·m	---	---	---
		$M_{y,Ed}$ = 0,137 kN·m	---	---	---

Nó 350 [+109; +1650; +894] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
742: CHSH 48.3x3.2 806: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
801: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,014 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,2%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	3,0%	Sim
		$M_{x,Ed}$ = 0,076 kN·m	---	---	---
		$M_{y,Ed}$ = 0,016 kN·m	---	---	---
805: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,026 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,6%	Sim
		N_{Ed} = 0,7 kN	N_{Rd} = 20,0 kN	3,3%	Sim
		$M_{x,Ed}$ = 0,108 kN·m	---	---	---
		$M_{y,Ed}$ = 0,142 kN·m	---	---	---

Nó 351 [+0; +1650; +1201] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
745: CHSH 48.3x3.2 808: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,3%	Sim
Travessas / longarinas					
803: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,042 kN·m	$M_{z,Rd}$ = 0,600 kN·m	6,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,6%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,7%	Sim
		$M_{x,Ed}$ = 0,107 kN·m	---	---	---
		$M_{v,Ed}$ = 0,258 kN·m	---	---	---
807: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,057 kN·m	$M_{z,Rd}$ = 0,600 kN·m	9,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,7%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	3,0%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,6%	Sim
		$M_{x,Ed}$ = 0,107 kN·m	---	---	---
		$M_{y,Ed}$ = 0,284 kN·m	---	---	---

Nó 352 [+109; +1650; +1201] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
747: CHSH 48.3x3.2 810: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,3%	Sim
Travessas / longarinas					
805: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,024 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,6%	Sim
		N_{Ed} = 0,7 kN	N_{Rd} = 20,0 kN	3,3%	Sim
		$M_{x,Ed}$ = 0,108 kN·m	---	---	---
		$M_{y,Ed}$ = 0,260 kN·m	---	---	---
809: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,036 kN·m	$M_{z,Rd}$ = 0,600 kN·m	6,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,9%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	2,8%	Sim
		$M_{x,Ed}$ = 0,107 kN·m	---	---	---
		$M_{y,Ed}$ = 0,286	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		kN·m			

Nó 353 [+0; +1650; +1508] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
752: CHSH 48.3x3.2 812: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
807: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,023 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	3,0%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,6%	Sim
		$M_{x,Ed}$ = 0,107 kN·m	---	---	---
		$M_{y,Ed}$ = 0,169 kN·m	---	---	---
811: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,027 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,6%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	3,0%	Sim
		$M_{x,Ed}$ = 0,064 kN·m	---	---	---
		$M_{y,Ed}$ = 0,004 kN·m	---	---	---

Nó 354 [+109; +1650; +1508] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
754: CHSH 48.3x3.2 814: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
809: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,015 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,9%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	2,8%	Sim
		$M_{x,Ed}$ = 0,107 kN·m	---	---	---
		$M_{y,Ed}$ = 0,167 kN·m	---	---	---
813: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,022 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,5%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	2,8%	Sim
		$M_{x,Ed}$ = 0,065 kN·m	---	---	---
		$M_{y,Ed}$ = 0,010 kN·m	---	---	---

Nó 355 [+0; +1650; +1815] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
757: CHSH 48.3x3.2 816: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,3%	Sim
Travessas / longarinas					
811: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,053 kN·m	$M_{z,Rd}$ = 0,600 kN·m	8,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,7%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,6%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	3,0%	Sim
		$M_{x,Ed}$ = 0,064 kN·m	---	---	---
		$M_{y,Ed}$ = 0,095 kN·m	---	---	---
815: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,030 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,2%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	3,1%	Sim
		$M_{x,Ed}$ = 0,024 kN·m	---	---	---
		$M_{y,Ed}$ = 0,048 kN·m	---	---	---

Nó 356 [+109; +1650; +1815] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
759: CHSH 48.3x3.2 818: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
813: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,024 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,5%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	2,8%	Sim
		$M_{x,Ed}$ = 0,065 kN·m	---	---	---
		$M_{y,Ed}$ = 0,085 kN·m	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
817: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,019 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,1%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	2,8%	Sim
		$M_{x,Ed}$ = 0,025 kN·m	---	---	---
		$M_{y,Ed}$ = 0,048 kN·m	---	---	---

Nó 357 [+0; +1650; +2122] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
763: CHSH 48.3x3.2 820: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
815: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,056 kN·m	$M_{z,Rd}$ = 0,600 kN·m	9,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,7%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,2%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	3,1%	Sim
		$M_{x,Ed}$ = 0,024 kN·m	---	---	---
		$M_{y,Ed}$ = 0,030 kN·m	---	---	---
819: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,026 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,4%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,8%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	2,9%	Sim
		$M_{x,Ed}$ = 0,030 kN·m	---	---	---
		$M_{y,Ed}$ = 0,045 kN·m	---	---	---

Nó 358 [+109; +1650; +2122] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
765: CHSH 48.3x3.2 822: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
817: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,029 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,1%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	2,8%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$M_{x,Ed}$ = 0,025 kN·m	---	---	---
		$M_{y,Ed}$ = 0,038 kN·m	---	---	---
821: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,004 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,6%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,1%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,6%	Sim
		$M_{x,Ed}$ = 0,029 kN·m	---	---	---
		$M_{y,Ed}$ = 0,012 kN·m	---	---	---

Nó 359 [+0; +1650; +2231] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
769: CHSH 48.3x3.2 824: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
819: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,031 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,1%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,8%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	2,9%	Sim
		$M_{x,Ed}$ = 0,030 kN·m	---	---	---
		$M_{y,Ed}$ = 0,004 kN·m	---	---	---
823: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,025 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,1%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,6%	Sim
		$M_{x,Ed}$ = 0,081 kN·m	---	---	---
		$M_{y,Ed}$ = 0,035 kN·m	---	---	---

Nó 360 [+109; +1650; +2231] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
771: CHSH 48.3x3.2 826: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,1%	Sim
Travessas / longarinas					
821: CHSH	Acero Tub T02	$M_{z,Ed}$ = 0,007	$M_{z,Rd}$ = 0,600	1,1%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
48.3x3.2		kN·m	kN·m		
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,1%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,6%	Sim
		$M_{x,Ed}$ = 0,029 kN·m	---	---	---
		$M_{y,Ed}$ = 0,008 kN·m	---	---	---
825: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,010 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,3%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,4%	Sim
		$M_{x,Ed}$ = 0,080 kN·m	---	---	---
		$M_{y,Ed}$ = 0,049 kN·m	---	---	---

Nó 361 [+0; +1650; +2438] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
774: CHSH 48.3x3.2 828: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
823: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,030 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,1%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,6%	Sim
		$M_{x,Ed}$ = 0,081 kN·m	---	---	---
		$M_{y,Ed}$ = 0,030 kN·m	---	---	---
827: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,024 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,1%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,2%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,2%	Sim
		$M_{x,Ed}$ = 0,076 kN·m	---	---	---
		$M_{y,Ed}$ = 0,113 kN·m	---	---	---

Nó 362 [+109; +1650; +2438] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
776: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
830: CHSH 48.3x3.2					
Travessas / longarinas					
825: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,009 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,3%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,4%	Sim
		$M_{x,Ed}$ = 0,080 kN·m	---	---	---
		$M_{y,Ed}$ = 0,025 kN·m	---	---	---
829: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,010 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,2%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,0%	Sim
		$M_{x,Ed}$ = 0,072 kN·m	---	---	---
		$M_{y,Ed}$ = 0,111 kN·m	---	---	---

Nó 363 [+0; +1650; +2645] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
779: CHSH 48.3x3.2 832: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
827: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,035 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,2%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,2%	Sim
		$M_{x,Ed}$ = 0,076 kN·m	---	---	---
		$M_{y,Ed}$ = 0,116 kN·m	---	---	---
831: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,032 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,1%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,6%	Sim
		$M_{x,Ed}$ = 0,076 kN·m	---	---	---
		$M_{y,Ed}$ = 0,034 kN·m	---	---	---

Nó 364 [+109; +1650; +2645] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
781: CHSH 48.3x3.2 834: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,1%	Sim
Travessas / longarinas					
829: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,008 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,2%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,0%	Sim
		$M_{x,Ed}$ = 0,072 kN·m	---	---	---
		$M_{y,Ed}$ = 0,118 kN·m	---	---	---
833: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,004 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,7%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,6%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,6%	Sim
		$M_{x,Ed}$ = 0,076 kN·m	---	---	---
		$M_{y,Ed}$ = 0,043 kN·m	---	---	---

Nó 365 [+0; +1650; +2754] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
784: CHSH 48.3x3.2 836: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,3%	Sim
Travessas / longarinas					
831: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,035 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,1%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,6%	Sim
		$M_{x,Ed}$ = 0,076 kN·m	---	---	---
		$M_{y,Ed}$ = 0,144 kN·m	---	---	---
835: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,043 kN·m	$M_{z,Rd}$ = 0,600 kN·m	7,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 5,0 kN	5,3%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,3%	Sim
		$M_{x,Ed}$ = 0,026 kN·m	---	---	---
		$M_{y,Ed}$ = 0,144 kN·m	---	---	---

Nó 366 [+109; +1650; +2754] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
785: CHSH 48.3x3.2 837: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
833: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,006 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,0%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,6%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,6%	Sim
		$M_{x,Ed}$ = 0,076 kN·m	---	---	---
		$M_{v,Ed}$ = 0,131 kN·m	---	---	---
835: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,047 kN·m	$M_{z,Rd}$ = 0,600 kN·m	7,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,7%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 5,0 kN	5,3%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,3%	Sim
		$M_{x,Ed}$ = 0,026 kN·m	---	---	---
		$M_{y,Ed}$ = 0,143 kN·m	---	---	---

Nó 367 [+0; +1700; -36] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
788: CHSH 48.3x3.2 840: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,9 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	1,4%	Sim
Travessas / longarinas					
838: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,478 kN·m	$M_{z,Rd}$ = 0,600 kN·m	79,7%	Sim
		$V_{y,Ed}$ = 0,9 kN	$V_{y,Rd}$ = 15,0 kN	6,0%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,6%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,3%	Sim
		$M_{x,Ed}$ = 0,022 kN·m	---	---	---
		$M_{y,Ed}$ = 0,014 kN·m	---	---	---
839: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,026 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	3,5%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,3%	Sim
		$M_{x,Ed}$ = 0,086 kN·m	---	---	---
		$M_{y,Ed}$ = 0,023	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		kN·m			

Nó 368 [+109; +1700; -36] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
790: CHSH 48.3x3.2 842: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,9 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	1,4%	Sim
Travessas / longarinas					
838: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,475 kN·m	$M_{z,Rd}$ = 0,600 kN·m	79,2%	Sim
		$V_{y,Ed}$ = 0,9 kN	$V_{y,Rd}$ = 15,0 kN	5,9%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,6%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,3%	Sim
		$M_{x,Ed}$ = 0,022 kN·m	---	---	---
		$M_{y,Ed}$ = 0,018 kN·m	---	---	---
841: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,003 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,4%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	3,3%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,2%	Sim
		$M_{x,Ed}$ = 0,090 kN·m	---	---	---
		$M_{y,Ed}$ = 0,005 kN·m	---	---	---

Nó 369 [+0; +1700; +73] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
792: CHSH 48.3x3.2 844: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
839: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,030 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	3,5%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,3%	Sim
		$M_{x,Ed}$ = 0,086 kN·m	---	---	---
		$M_{y,Ed}$ = 0,171 kN·m	---	---	---
843: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,026 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,8%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,2%	Sim
		$M_{x,Ed}$ = 0,008 kN·m	---	---	---
		$M_{y,Ed}$ = 0,180 kN·m	---	---	---

Nó 370 [+109; +1700; +73] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
794: CHSH 48.3x3.2 846: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
841: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,006 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,0%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	3,3%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,2%	Sim
		$M_{x,Ed}$ = 0,090 kN·m	---	---	---
		$M_{y,Ed}$ = 0,174 kN·m	---	---	---
845: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,019 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,1%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,6%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,5%	Sim
		$M_{x,Ed}$ = 0,008 kN·m	---	---	---
		$M_{y,Ed}$ = 0,166 kN·m	---	---	---

Nó 371 [+0; +1700; +330] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
796: CHSH 48.3x3.2 848: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
843: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,037 kN·m	$M_{z,Rd}$ = 0,600 kN·m	6,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,8%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,2%	Sim
		$M_{x,Ed}$ = 0,008 kN·m	---	---	---
		$M_{y,Ed}$ = 0,180 kN·m	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
847: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,034 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,3%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,3%	Sim
		$M_{x,Ed}$ = 0,032 kN·m	---	---	---
		$M_{y,Ed}$ = 0,148 kN·m	---	---	---

Nó 372 [+109; +1700; +330] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
798: CHSH 48.3x3.2 850: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
845: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,012 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,6%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,5%	Sim
		$M_{x,Ed}$ = 0,008 kN·m	---	---	---
		$M_{y,Ed}$ = 0,168 kN·m	---	---	---
849: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,023 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,3%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,6%	Sim
		$M_{x,Ed}$ = 0,032 kN·m	---	---	---
		$M_{y,Ed}$ = 0,151 kN·m	---	---	---

Nó 373 [+0; +1700; +637] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
800: CHSH 48.3x3.2 852: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
847: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,044 kN·m	$M_{z,Rd}$ = 0,600 kN·m	7,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,3%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,3%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$M_{x,Ed}$ = 0,032 kN·m	---	---	---
		$M_{y,Ed}$ = 0,055 kN·m	---	---	---
851: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,027 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,6%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,4%	Sim
		$M_{x,Ed}$ = 0,089 kN·m	---	---	---
		$M_{y,Ed}$ = 0,024 kN·m	---	---	---

Nó 374 [+109; +1700; +637] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
802: CHSH 48.3x3.2 854: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
849: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,022 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,3%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,6%	Sim
		$M_{x,Ed}$ = 0,032 kN·m	---	---	---
		$M_{y,Ed}$ = 0,051 kN·m	---	---	---
853: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,018 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,6%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	0,9%	Sim
		$M_{x,Ed}$ = 0,087 kN·m	---	---	---
		$M_{y,Ed}$ = 0,031 kN·m	---	---	---

Nó 375 [+0; +1700; +894] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
804: CHSH 48.3x3.2 856: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
851: CHSH	Acero Tub T02	$M_{z,Ed}$ = 0,038	$M_{z,Rd}$ = 0,600	6,4%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
48.3x3.2		kN·m	kN·m		
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,6%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,4%	Sim
		$M_{x,Ed}$ = 0,089 kN·m	---	---	---
		$M_{y,Ed}$ = 0,052 kN·m	---	---	---
855: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,033 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,5%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,6%	Sim
		$M_{x,Ed}$ = 0,110 kN·m	---	---	---
		$M_{y,Ed}$ = 0,068 kN·m	---	---	---

Nó 376 [+109; +1700; +894] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
806: CHSH 48.3x3.2 858: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
853: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,013 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,1%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,6%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	0,9%	Sim
		$M_{x,Ed}$ = 0,087 kN·m	---	---	---
		$M_{y,Ed}$ = 0,050 kN·m	---	---	---
857: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,024 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,5%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	1,2%	Sim
		$M_{x,Ed}$ = 0,112 kN·m	---	---	---
		$M_{y,Ed}$ = 0,071 kN·m	---	---	---

Nó 377 [+0; +1700; +1201] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
808: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,3%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
860: CHSH 48.3x3.2					
Travessas / longarinas					
855: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,046 kN·m	$M_{z,Rd}$ = 0,600 kN·m	7,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,5%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,6%	Sim
		$M_{x,Ed}$ = 0,110 kN·m	---	---	---
		$M_{y,Ed}$ = 0,156 kN·m	---	---	---
859: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,058 kN·m	$M_{z,Rd}$ = 0,600 kN·m	9,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,7%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,6%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	0,8%	Sim
		$M_{x,Ed}$ = 0,111 kN·m	---	---	---
		$M_{y,Ed}$ = 0,164 kN·m	---	---	---

Nó 378 [+109; +1700; +1201] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
810: CHSH 48.3x3.2 862: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,3%	Sim
Travessas / longarinas					
857: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,022 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,5%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	1,2%	Sim
		$M_{x,Ed}$ = 0,112 kN·m	---	---	---
		$M_{y,Ed}$ = 0,156 kN·m	---	---	---
861: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,039 kN·m	$M_{z,Rd}$ = 0,600 kN·m	6,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,6%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,5%	Sim
		$M_{x,Ed}$ = 0,111 kN·m	---	---	---
		$M_{y,Ed}$ = 0,166 kN·m	---	---	---

Nó 379 [+0; +1700; +1508] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
812: CHSH 48.3x3.2 864: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
859: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,027 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,6%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	0,8%	Sim
		$M_{x,Ed}$ = 0,111 kN·m	---	---	---
		$M_{y,Ed}$ = 0,077 kN·m	---	---	---
863: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,029 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,1%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	0,9%	Sim
		$M_{x,Ed}$ = 0,071 kN·m	---	---	---
		$M_{y,Ed}$ = 0,036 kN·m	---	---	---

Nó 380 [+109; +1700; +1508] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
814: CHSH 48.3x3.2 866: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
861: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,015 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,6%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,5%	Sim
		$M_{x,Ed}$ = 0,111 kN·m	---	---	---
		$M_{y,Ed}$ = 0,076 kN·m	---	---	---
865: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,023 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,1%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,5%	Sim
		$M_{x,Ed}$ = 0,072 kN·m	---	---	---
		$M_{y,Ed}$ = 0,042 kN·m	---	---	---

Nó 381 [+0; +1700; +1815] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
816: CHSH 48.3x3.2 868: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
863: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,056 kN·m	$M_{z,Rd}$ = 0,600 kN·m	9,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,7%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,1%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	0,9%	Sim
		$M_{x,Ed}$ = 0,071 kN·m	---	---	---
		$M_{v,Ed}$ = 0,036 kN·m	---	---	---
867: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,031 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,1%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,3%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,7%	Sim
		$M_{x,Ed}$ = 0,028 kN·m	---	---	---
		$M_{y,Ed}$ = 0,021 kN·m	---	---	---

Nó 382 [+109; +1700; +1815] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
818: CHSH 48.3x3.2 870: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
865: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,023 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,1%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,5%	Sim
		$M_{x,Ed}$ = 0,072 kN·m	---	---	---
		$M_{y,Ed}$ = 0,029 kN·m	---	---	---
869: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,021 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,3%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,4%	Sim
		$M_{x,Ed}$ = 0,030 kN·m	---	---	---
		$M_{y,Ed}$ = 0,022	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		kN·m			

Nó 383 [+0; +1700; +2122] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
820: CHSH 48.3x3.2 872: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
867: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,058 kN·m	$M_{z,Rd}$ = 0,600 kN·m	9,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,7%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,3%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,7%	Sim
		$M_{x,Ed}$ = 0,028 kN·m	---	---	---
		$M_{y,Ed}$ = 0,053 kN·m	---	---	---
871: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,028 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,7%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,0%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,5%	Sim
		$M_{x,Ed}$ = 0,018 kN·m	---	---	---
		$M_{y,Ed}$ = 0,062 kN·m	---	---	---

Nó 384 [+109; +1700; +2122] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
822: CHSH 48.3x3.2 874: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
869: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,027 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,3%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,4%	Sim
		$M_{x,Ed}$ = 0,030 kN·m	---	---	---
		$M_{y,Ed}$ = 0,060 kN·m	---	---	---
873: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,003 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,5%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,5%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	1,0%	Sim
		$M_{x,Ed}$ = 0,016 kN·m	---	---	---
		$M_{y,Ed}$ = 0,036 kN·m	---	---	---

Nó 385 [+0; +1700; +2231] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
824: CHSH 48.3x3.2 876: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
871: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,033 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,0%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,5%	Sim
		$M_{x,Ed}$ = 0,018 kN·m	---	---	---
		$M_{y,Ed}$ = 0,047 kN·m	---	---	---
875: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,023 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,4%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,6%	Sim
		$M_{x,Ed}$ = 0,099 kN·m	---	---	---
		$M_{y,Ed}$ = 0,052 kN·m	---	---	---

Nó 386 [+109; +1700; +2231] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
826: CHSH 48.3x3.2 878: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,1%	Sim
Travessas / longarinas					
873: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,004 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,7%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,5%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	1,0%	Sim
		$M_{x,Ed}$ = 0,016 kN·m	---	---	---
		$M_{y,Ed}$ = 0,044 kN·m	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
877: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,011 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,2%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	1,0%	Sim
		$M_{x,Ed}$ = 0,098 kN·m	---	---	---
		$M_{y,Ed}$ = 0,040 kN·m	---	---	---

Nó 387 [+0; +1700; +2438] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
828: CHSH 48.3x3.2 880: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
875: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,031 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,4%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,6%	Sim
		$M_{x,Ed}$ = 0,099 kN·m	---	---	---
		$M_{y,Ed}$ = 0,092 kN·m	---	---	---
879: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,023 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,1%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,7%	Sim
		$M_{x,Ed}$ = 0,077 kN·m	---	---	---
		$M_{y,Ed}$ = 0,106 kN·m	---	---	---

Nó 388 [+109; +1700; +2438] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
830: CHSH 48.3x3.2 882: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
877: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,008 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,2%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	1,0%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$M_{x,Ed}$ = 0,098 kN·m	---	---	---
		$M_{y,Ed}$ = 0,084 kN·m	---	---	---
881: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,011 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,2%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	0,9%	Sim
		$M_{x,Ed}$ = 0,073 kN·m	---	---	---
		$M_{y,Ed}$ = 0,108 kN·m	---	---	---

Nó 389 [+0; +1700; +2645] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
832: CHSH 48.3x3.2 884: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
879: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,035 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,1%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,7%	Sim
		$M_{x,Ed}$ = 0,077 kN·m	---	---	---
		$M_{y,Ed}$ = 0,111 kN·m	---	---	---
883: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,033 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,1%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	0,8%	Sim
		$M_{x,Ed}$ = 0,083 kN·m	---	---	---
		$M_{y,Ed}$ = 0,086 kN·m	---	---	---

Nó 390 [+109; +1700; +2645] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
834: CHSH 48.3x3.2 886: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,1%	Sim
Travessas / longarinas					
881: CHSH	Acero Tub T02	$M_{z,Ed}$ = 0,009	$M_{z,Rd}$ = 0,600	1,5%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
48.3x3.2		kN·m	kN·m		
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,2%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	0,9%	Sim
		$M_{x,Ed}$ = 0,073 kN·m	---	---	---
		$M_{y,Ed}$ = 0,118 kN·m	---	---	---
885: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,001 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,2%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,2%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	0,9%	Sim
		$M_{x,Ed}$ = 0,081 kN·m	---	---	---
		$M_{y,Ed}$ = 0,100 kN·m	---	---	---

Nó 391 [+0; +1700; +2754] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
836: CHSH 48.3x3.2 888: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,3%	Sim
Travessas / longarinas					
883: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,036 kN·m	$M_{z,Rd}$ = 0,600 kN·m	6,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,1%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	0,8%	Sim
		$M_{x,Ed}$ = 0,083 kN·m	---	---	---
		$M_{y,Ed}$ = 0,055 kN·m	---	---	---
887: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,050 kN·m	$M_{z,Rd}$ = 0,600 kN·m	8,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,6%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,1%	Sim
		$M_{x,Ed}$ = 0,025 kN·m	---	---	---
		$M_{y,Ed}$ = 0,072 kN·m	---	---	---

Nó 392 [+109; +1700; +2754] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
837: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
889: CHSH 48.3x3.2					
Travessas / longarinas					
885: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,003 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,6%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,2%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	0,9%	Sim
		$M_{x,Ed}$ = 0,081 kN·m	---	---	---
		$M_{y,Ed}$ = 0,045 kN·m	---	---	---
887: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,054 kN·m	$M_{z,Rd}$ = 0,600 kN·m	9,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,8%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,6%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,1%	Sim
		$M_{x,Ed}$ = 0,025 kN·m	---	---	---
		$M_{y,Ed}$ = 0,070 kN·m	---	---	---

Nó 394 [+0; +1780; +2645] cm

Ligação com abraçadeira ortogonal
Elemento de ligação: G01 48x48

Barra	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Gerais				
	$F_{p,Ed}$ = 0,4 kN	$F_{p,Rd}$ = 25,0 kN	1,7%	Sim
	$M_{B,Ed}$ = 0,336 kN·m	$M_{B,Rd}$ = 0,700 kN·m	31,9%	Sim
Barra 1				
884: CHSH 48.3x3.2	N_{Ed} = 0,4 kN	N_{Rd} = 8,0 kN	5,4%	Sim
	$M_{x,Ed}$ = 0,136 kN·m	$M_{x,Rd}$ = 0,100 kN·m	135,7%	Não
892: CHSH 48.3x3.2	$V_{y,Ed}$ = 1,3 kN	---	---	---
	$M_{y,Ed}$ = 0,018 kN·m	---	---	---
Barra 2				
890: CHSH 48.3x3.2	N_{Ed} = 1,3 kN	N_{Rd} = 8,0 kN	16,8%	Sim
	$M_{x,Ed}$ = 0,018 kN·m	$M_{x,Rd}$ = 0,100 kN·m	18,3%	Sim
891: CHSH 48.3x3.2	$V_{y,Ed}$ = 0,4 kN	---	---	---
	$M_{y,Ed}$ = 0,136 kN·m	---	---	---

Erros de comprovação

Resistência à torsão insuficiente na barra 1

Nó 395 [+109; +1780; +2645] cm

Ligação com abraçadeira ortogonal
Elemento de ligação: G01 48x48

Barra	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Gerais				
	$F_{p,Ed}$ = 0,2 kN	$F_{p,Rd}$ = 25,0 kN	0,6%	Sim
	$M_{B,Ed}$ = 0,340 kN·m	$M_{B,Rd}$ = 0,700 kN·m	34,9%	Sim
Barra 1				

Barra	Esforços	Resistência	COMPROVAÇÃO	Cumpre
886: CHSH 48.3x3.2	N_{Ed} = 0,5 kN	N_{Rd} = 8,0 kN	5,8%	Sim
	$M_{x,Ed}$ = 0,098 kN·m	$M_{x,Rd}$ = 0,100 kN·m	98,2%	Sim
893: CHSH 48.3x3.2	$V_{y,Ed}$ = 1,4 kN	---	---	---
	$M_{y,Ed}$ = 0,018 kN·m	---	---	---
Barra 2				
891: CHSH 48.3x3.2	N_{Ed} = 1,4 kN	N_{Rd} = 8,0 kN	17,0%	Sim
	$M_{x,Ed}$ = 0,018 kN·m	$M_{x,Rd}$ = 0,100 kN·m	18,3%	Sim
	$V_{y,Ed}$ = 0,5 kN	---	---	---
	$M_{y,Ed}$ = 0,098 kN·m	---	---	---

Nó 396 [+0; +1800; -36] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
840: CHSH 48.3x3.2 896: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 1,2 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	1,8%	Sim
Travessas / longarinas					
894: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,363 kN·m	$M_{z,Rd}$ = 0,600 kN·m	60,4%	Sim
		$V_{y,Ed}$ = 0,7 kN	$V_{y,Rd}$ = 15,0 kN	4,6%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 5,0 kN	5,4%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,6%	Sim
		$M_{x,Ed}$ = 0,010 kN·m	---	---	---
		$M_{y,Ed}$ = 0,150 kN·m	---	---	---
895: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,044 kN·m	$M_{z,Rd}$ = 0,600 kN·m	7,4%	Sim
		$V_{y,Ed}$ = 0,7 kN	$V_{y,Rd}$ = 15,0 kN	4,8%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	7,4%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,3%	Sim
		$M_{x,Ed}$ = 0,034 kN·m	---	---	---
		$M_{y,Ed}$ = 0,167 kN·m	---	---	---

Nó 397 [+109; +1800; -36] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
842: CHSH 48.3x3.2 898: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 1,2 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	1,9%	Sim
Travessas / longarinas					
894: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,361 kN·m	$M_{z,Rd}$ = 0,600 kN·m	60,2%	Sim
		$V_{y,Ed}$ = 0,7 kN	$V_{y,Rd}$ = 15,0 kN	4,6%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 5,0 kN	5,4%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,6%	Sim
		$M_{x,Ed}$ = 0,010 kN·m	---	---	---
		$M_{y,Ed}$ = 0,147 kN·m	---	---	---
897: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,034 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,7%	Sim
		$V_{y,Ed}$ = 0,7 kN	$V_{y,Rd}$ = 15,0 kN	4,7%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,1%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	1,8%	Sim
		$M_{x,Ed}$ = 0,018 kN·m	---	---	---
		$M_{y,Ed}$ = 0,151 kN·m	---	---	---

Nó 398 [+0; +1800; +73] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
844: CHSH 48.3x3.2 901: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 2,8 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	4,2%	Sim
Travessas / longarinas					
895: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,045 kN·m	$M_{z,Rd}$ = 0,600 kN·m	7,6%	Sim
		$V_{y,Ed}$ = 0,7 kN	$V_{y,Rd}$ = 15,0 kN	4,8%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	7,4%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,3%	Sim
		$M_{x,Ed}$ = 0,034 kN·m	---	---	---
		$M_{y,Ed}$ = 0,235 kN·m	---	---	---
899: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,388 kN·m	$M_{z,Rd}$ = 0,600 kN·m	64,7%	Sim
		$V_{y,Ed}$ = 2,0 kN	$V_{y,Rd}$ = 15,0 kN	13,1%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 5,0 kN	6,0%	Sim
		N_{Ed} = 2,9 kN	N_{Rd} = 20,0 kN	14,7%	Sim
		$M_{x,Ed}$ = 0,010 kN·m	---	---	---
		$M_{y,Ed}$ = 0,149 kN·m	---	---	---
900: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,022 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,9%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	0,8%	Sim
		$M_{x,Ed}$ = 0,033 kN·m	---	---	---
		$M_{y,Ed}$ = 0,315 kN·m	---	---	---

Nó 399 [+109; +1800; +73] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
846: CHSH 48.3x3.2 903: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 2,8 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	4,3%	Sim
Travessas / longarinas					
897: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,037 kN·m	$M_{z,Rd}$ = 0,600 kN·m	6,2%	Sim
		$V_{y,Ed}$ = 0,7 kN	$V_{y,Rd}$ = 15,0 kN	4,7%	Sim
		$V_{z,Ed}$ = 0,7 kN	$V_{z,Rd}$ = 5,0 kN	13,5%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	1,8%	Sim
		$M_{x,Ed}$ = 0,018 kN·m	---	---	---
		$M_{y,Ed}$ = 0,328 kN·m	---	---	---
899: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,412 kN·m	$M_{z,Rd}$ = 0,600 kN·m	68,6%	Sim
		$V_{y,Ed}$ = 2,0 kN	$V_{y,Rd}$ = 15,0 kN	13,3%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 5,0 kN	6,0%	Sim
		N_{Ed} = 2,9 kN	N_{Rd} = 20,0 kN	14,7%	Sim
		$M_{x,Ed}$ = 0,010 kN·m	---	---	---
		$M_{y,Ed}$ = 0,177 kN·m	---	---	---
902: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,022 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,8 kN	$V_{z,Rd}$ = 5,0 kN	15,3%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	2,9%	Sim
		$M_{x,Ed}$ = 0,029 kN·m	---	---	---
		$M_{y,Ed}$ = 0,512 kN·m	---	---	---
Diagonais					
721: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 0,7 kN	$N_{c,Rd}$ = 7,0 kN	10,3%	Sim
		$N_{t,Ed}$ = 0,5 kN	$N_{t,Rd}$ = 7,0 kN	7,8%	Sim
		$V_{y,Ed}$ = 0,0 kN	---	---	---
		$V_{z,Ed}$ = 0,1 kN	---	---	---
		$M_{x,Ed}$ = 0,005 kN·m	---	---	---
		$M_{y,Ed}$ = 0,098 kN·m	---	---	---
		$M_{z,Ed}$ = 0,012 kN·m	---	---	---

Nó 400 [+0; +1800; +330] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
848: CHSH 48.3x3.2 906: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 4,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	6,3%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Travessas / longarinas					
900: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,026 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,9%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	0,8%	Sim
		$M_{x,Ed}$ = 0,033 kN·m	---	---	---
		$M_{y,Ed}$ = 0,310 kN·m	---	---	---
904: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,520 kN·m	$M_{z,Rd}$ = 0,600 kN·m	86,6%	Sim
		$V_{y,Ed}$ = 3,9 kN	$V_{y,Rd}$ = 15,0 kN	26,2%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	7,5%	Sim
		N_{Ed} = 0,7 kN	N_{Rd} = 20,0 kN	3,5%	Sim
		$M_{x,Ed}$ = 0,008 kN·m	---	---	---
		$M_{y,Ed}$ = 0,185 kN·m	---	---	---
905: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,028 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,8%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,7%	Sim
		$M_{x,Ed}$ = 0,004 kN·m	---	---	---
		$M_{y,Ed}$ = 0,229 kN·m	---	---	---

Nó 401 [+109; +1800; +330] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
850: CHSH 48.3x3.2 908: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 4,4 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	6,8%	Sim
Travessas / longarinas					
902: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,017 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	7,5%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	2,9%	Sim
		$M_{x,Ed}$ = 0,029 kN·m	---	---	---
		$M_{y,Ed}$ = 0,029 kN·m	---	---	---
904: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,533 kN·m	$M_{z,Rd}$ = 0,600 kN·m	88,9%	Sim
		$V_{y,Ed}$ = 3,9 kN	$V_{y,Rd}$ = 15,0 kN	26,3%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	7,5%	Sim
		N_{Ed} = 0,7 kN	N_{Rd} = 20,0 kN	3,5%	Sim
		$M_{x,Ed}$ = 0,008 kN·m	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$M_{y,Ed}$ = 0,221 kN·m	---	---	---
907: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,023 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,6 kN	$V_{z,Rd}$ = 5,0 kN	11,1%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,4%	Sim
		$M_{x,Ed}$ = 0,004 kN·m	---	---	---
		$M_{y,Ed}$ = 0,149 kN·m	---	---	---
Diagonais					
737: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 0,2 kN	$N_{c,Rd}$ = 7,0 kN	3,3%	Sim
		$N_{t,Ed}$ = 0,7 kN	$N_{t,Rd}$ = 7,0 kN	9,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,017 kN·m	---	---	---
		$M_{y,Ed}$ = 0,026 kN·m	---	---	---
		$M_{z,Ed}$ = 0,037 kN·m	---	---	---

Nó 402 [+0; +1800; +637] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
852: CHSH 48.3x3.2 911: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 4,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	6,3%	Sim
Travessas / longarinas					
905: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,034 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,8%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,7%	Sim
		$M_{x,Ed}$ = 0,004 kN·m	---	---	---
		$M_{y,Ed}$ = 0,199 kN·m	---	---	---
909: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,523 kN·m	$M_{z,Rd}$ = 0,600 kN·m	87,1%	Sim
		$V_{y,Ed}$ = 3,9 kN	$V_{y,Rd}$ = 15,0 kN	26,2%	Sim
		$V_{z,Ed}$ = 0,5 kN	$V_{z,Rd}$ = 5,0 kN	10,2%	Sim
		N_{Ed} = 2,4 kN	N_{Rd} = 20,0 kN	12,1%	Sim
		$M_{x,Ed}$ = 0,010 kN·m	---	---	---
		$M_{y,Ed}$ = 0,260 kN·m	---	---	---
910: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,021 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,2%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,045 kN·m	---	---	---
		$M_{y,Ed}$ = 0,085 kN·m	---	---	---

Nó 403 [+109; +1800; +637] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
854: CHSH 48.3x3.2 913: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 4,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	6,3%	Sim
Travessas / longarinas					
907: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,025 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,8 kN	$V_{z,Rd}$ = 5,0 kN	16,0%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,4%	Sim
		$M_{x,Ed}$ = 0,004 kN·m	---	---	---
		$M_{y,Ed}$ = 0,523 kN·m	---	---	---
909: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,531 kN·m	$M_{z,Rd}$ = 0,600 kN·m	88,5%	Sim
		$V_{y,Ed}$ = 3,9 kN	$V_{y,Rd}$ = 15,0 kN	26,3%	Sim
		$V_{z,Ed}$ = 0,5 kN	$V_{z,Rd}$ = 5,0 kN	10,2%	Sim
		N_{Ed} = 2,4 kN	N_{Rd} = 20,0 kN	12,1%	Sim
		$M_{x,Ed}$ = 0,010 kN·m	---	---	---
		$M_{y,Ed}$ = 0,295 kN·m	---	---	---
912: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,019 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,6 kN	$V_{z,Rd}$ = 5,0 kN	12,4%	Sim
		N_{Ed} = 0,9 kN	N_{Rd} = 20,0 kN	4,6%	Sim
		$M_{x,Ed}$ = 0,048 kN·m	---	---	---
		$M_{y,Ed}$ = 0,342 kN·m	---	---	---

Nó 404 [+0; +1800; +894] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
856: CHSH 48.3x3.2 916: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 3,9 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	6,0%	Sim
Travessas / longarinas					

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
910: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,027 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,2%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,045 kN·m	---	---	---
		$M_{y,Ed}$ = 0,063 kN·m	---	---	---
914: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,390 kN·m	$M_{z,Rd}$ = 0,600 kN·m	65,0%	Sim
		$V_{y,Ed}$ = 3,8 kN	$V_{y,Rd}$ = 15,0 kN	25,2%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	3,8%	Sim
		N_{Ed} = 1,4 kN	N_{Rd} = 20,0 kN	7,0%	Sim
		$M_{x,Ed}$ = 0,008 kN·m	---	---	---
		$M_{y,Ed}$ = 0,092 kN·m	---	---	---
915: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,027 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,4%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,060 kN·m	---	---	---
		$M_{y,Ed}$ = 0,034 kN·m	---	---	---

Nó 405 [+109; +1800; +894] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
858: CHSH 48.3x3.2 918: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 4,9 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	7,6%	Sim
Travessas / longarinas					
912: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,019 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,1%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,5 kN	$V_{z,Rd}$ = 5,0 kN	10,6%	Sim
		N_{Ed} = 0,9 kN	N_{Rd} = 20,0 kN	4,6%	Sim
		$M_{x,Ed}$ = 0,048 kN·m	---	---	---
		$M_{y,Ed}$ = 0,227 kN·m	---	---	---
914: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,386 kN·m	$M_{z,Rd}$ = 0,600 kN·m	64,3%	Sim
		$V_{y,Ed}$ = 3,8 kN	$V_{y,Rd}$ = 15,0 kN	25,2%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	3,8%	Sim
		N_{Ed} = 1,4 kN	N_{Rd} = 20,0 kN	7,0%	Sim
		$M_{x,Ed}$ = 0,008 kN·m	---	---	---
		$M_{y,Ed}$ = 0,118	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		kN·m			
917: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,024 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,7 kN	$V_{z,Rd}$ = 5,0 kN	13,5%	Sim
		N_{Ed} = 2,0 kN	N_{Rd} = 20,0 kN	10,0%	Sim
		$M_{x,Ed}$ = 0,055 kN·m	---	---	---
		$M_{y,Ed}$ = 0,356 kN·m	---	---	---
Diagonais					
748: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 1,3 kN	$N_{c,Rd}$ = 7,0 kN	19,1%	Sim
		$N_{t,Ed}$ = 2,3 kN	$N_{t,Rd}$ = 7,0 kN	32,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,040 kN·m	---	---	---
		$M_{y,Ed}$ = 0,084 kN·m	---	---	---
		$M_{z,Ed}$ = 0,038 kN·m	---	---	---

Nó 406 [+0; +1800; +1201] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
860: CHSH 48.3x3.2 921: CHSH 48.3x3.2	Acero R01	$\Sigma V_{y,Ed}$ = 11,7 kN	$\Sigma V_{y,Rd}$ = 100,0 kN	11,7%	Sim
Travessas / longarinas					
915: CHSH 48.3x3.2	Acero Tub T01	$M_{z,Ed}$ = 0,034 kN·m	$M_{z,Rd}$ = 1,000 kN·m	3,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 25,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 8,0 kN	0,3%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 30,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,060 kN·m	---	---	---
		$M_{y,Ed}$ = 0,032 kN·m	---	---	---
919: CHSH 48.3x3.2	Acero Tub T01	$M_{z,Ed}$ = 0,207 kN·m	$M_{z,Rd}$ = 1,000 kN·m	20,7%	Sim
		$V_{y,Ed}$ = 3,9 kN	$V_{y,Rd}$ = 25,0 kN	15,4%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 8,0 kN	1,9%	Sim
		N_{Ed} = 1,0 kN	N_{Rd} = 30,0 kN	3,5%	Sim
		$M_{x,Ed}$ = 0,010 kN·m	---	---	---
		$M_{y,Ed}$ = 0,085 kN·m	---	---	---
920: CHSH 48.3x3.2	Acero Tub T01	$M_{z,Ed}$ = 0,052 kN·m	$M_{z,Rd}$ = 1,000 kN·m	5,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 25,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 8,0 kN	0,2%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 30,0 kN	0,0%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$M_{x,Ed}$ = 0,059 kN·m	---	---	---
		$M_{y,Ed}$ = 0,031 kN·m	---	---	---
Diagonais					
749: CHSH 48.3x2,3	Acero D01	$N_{c,Ed}$ = 11,0 kN	$N_{c,Rd}$ = 15,0 kN	73,1%	Sim
		$N_{t,Ed}$ = 9,7 kN	$N_{t,Rd}$ = 17,0 kN	57,2%	Sim
		$V_{y,Ed}$ = 0,0 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,005 kN·m	---	---	---
		$M_{y,Ed}$ = 0,015 kN·m	---	---	---
		$M_{z,Ed}$ = 0,060 kN·m	---	---	---

Nó 407 [+109; +1800; +1201] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
862: CHSH 48.3x3.2 923: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 4,0 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	6,2%	Sim
Travessas / longarinas					
917: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,027 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,7 kN	$V_{z,Rd}$ = 5,0 kN	13,5%	Sim
		N_{Ed} = 2,0 kN	N_{Rd} = 20,0 kN	10,0%	Sim
		$M_{x,Ed}$ = 0,055 kN·m	---	---	---
		$M_{y,Ed}$ = 0,357 kN·m	---	---	---
919: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,201 kN·m	$M_{z,Rd}$ = 0,600 kN·m	33,4%	Sim
		$V_{y,Ed}$ = 3,8 kN	$V_{y,Rd}$ = 15,0 kN	25,6%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	3,1%	Sim
		N_{Ed} = 1,0 kN	N_{Rd} = 20,0 kN	5,2%	Sim
		$M_{x,Ed}$ = 0,010 kN·m	---	---	---
		$M_{y,Ed}$ = 0,083 kN·m	---	---	---
922: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,035 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,7 kN	$V_{z,Rd}$ = 5,0 kN	13,5%	Sim
		N_{Ed} = 2,1 kN	N_{Rd} = 20,0 kN	10,5%	Sim
		$M_{x,Ed}$ = 0,062 kN·m	---	---	---
		$M_{y,Ed}$ = 0,364 kN·m	---	---	---

Nó 408 [+0; +1800; +1508] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
864: CHSH 48.3x3.2 926: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 4,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	6,4%	Sim
Travessas / longarinas					
920: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,018 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,4%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,059 kN·m	---	---	---
		$M_{v,Ed}$ = 0,031 kN·m	---	---	---
924: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,362 kN·m	$M_{z,Rd}$ = 0,600 kN·m	60,3%	Sim
		$V_{y,Ed}$ = 4,0 kN	$V_{y,Rd}$ = 15,0 kN	26,7%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 5,0 kN	5,0%	Sim
		N_{Ed} = 1,7 kN	N_{Rd} = 20,0 kN	8,5%	Sim
		$M_{x,Ed}$ = 0,008 kN·m	---	---	---
		$M_{y,Ed}$ = 0,125 kN·m	---	---	---
925: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,022 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,4%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,042 kN·m	---	---	---
		$M_{y,Ed}$ = 0,028 kN·m	---	---	---

Nó 409 [+109; +1800; +1508] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
866: CHSH 48.3x3.2 928: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 3,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	4,8%	Sim
Travessas / longarinas					
922: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,018 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,7 kN	$V_{z,Rd}$ = 5,0 kN	13,6%	Sim
		N_{Ed} = 2,1 kN	N_{Rd} = 20,0 kN	10,5%	Sim
		$M_{x,Ed}$ = 0,062 kN·m	---	---	---
		$M_{y,Ed}$ = 0,368	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		kN·m			
924: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,450 kN·m	$M_{z,Rd}$ = 0,600 kN·m	75,0%	Sim
		$V_{y,Ed}$ = 4,2 kN	$V_{y,Rd}$ = 15,0 kN	27,8%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 5,0 kN	5,0%	Sim
		N_{Ed} = 1,7 kN	N_{Rd} = 20,0 kN	8,5%	Sim
		$M_{x,Ed}$ = 0,008 kN·m	---	---	---
		$M_{y,Ed}$ = 0,148 kN·m	---	---	---
927: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,020 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,7 kN	$V_{z,Rd}$ = 5,0 kN	13,3%	Sim
		N_{Ed} = 1,1 kN	N_{Rd} = 20,0 kN	5,6%	Sim
		$M_{x,Ed}$ = 0,038 kN·m	---	---	---
		$M_{y,Ed}$ = 0,344 kN·m	---	---	---
Diagonais					
760: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 2,3 kN	$N_{c,Rd}$ = 7,0 kN	32,3%	Sim
		$N_{t,Ed}$ = 0,0 kN	$N_{t,Rd}$ = 7,0 kN	0,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,026 kN·m	---	---	---
		$M_{y,Ed}$ = 0,104 kN·m	---	---	---
		$M_{z,Ed}$ = 0,034 kN·m	---	---	---

Nó 410 [+0; +1800; +1815] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
868: CHSH 48.3x3.2 931: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 4,4 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	6,7%	Sim
Travessas / longarinas					
925: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,045 kN·m	$M_{z,Rd}$ = 0,600 kN·m	7,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,4%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,042 kN·m	---	---	---
		$M_{y,Ed}$ = 0,029 kN·m	---	---	---
929: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,535 kN·m	$M_{z,Rd}$ = 0,600 kN·m	89,2%	Sim
		$V_{y,Ed}$ = 4,2 kN	$V_{y,Rd}$ = 15,0 kN	28,2%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 5,0 kN	5,7%	Sim
		N_{Ed} = 2,2 kN	N_{Rd} = 20,0 kN	10,8%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$M_{x,Ed}$ = 0,009 kN·m	---	---	---
		$M_{y,Ed}$ = 0,152 kN·m	---	---	---
930: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,024 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,2%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,7%	Sim
		$M_{x,Ed}$ = 0,013 kN·m	---	---	---
		$M_{y,Ed}$ = 0,084 kN·m	---	---	---

Nó 411 [+109; +1800; +1815] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
870: CHSH 48.3x3.2 933: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 4,4 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	6,8%	Sim
Travessas / longarinas					
927: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,027 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,7 kN	$V_{z,Rd}$ = 5,0 kN	13,8%	Sim
		N_{Ed} = 1,1 kN	N_{Rd} = 20,0 kN	5,6%	Sim
		$M_{x,Ed}$ = 0,038 kN·m	---	---	---
		$M_{y,Ed}$ = 0,377 kN·m	---	---	---
929: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,557 kN·m	$M_{z,Rd}$ = 0,600 kN·m	92,8%	Sim
		$V_{y,Ed}$ = 4,3 kN	$V_{y,Rd}$ = 15,0 kN	28,5%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 5,0 kN	5,7%	Sim
		N_{Ed} = 2,2 kN	N_{Rd} = 20,0 kN	10,8%	Sim
		$M_{x,Ed}$ = 0,009 kN·m	---	---	---
		$M_{y,Ed}$ = 0,157 kN·m	---	---	---
932: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,019 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,1%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,7 kN	$V_{z,Rd}$ = 5,0 kN	15,0%	Sim
		N_{Ed} = 1,1 kN	N_{Rd} = 20,0 kN	5,3%	Sim
		$M_{x,Ed}$ = 0,015 kN·m	---	---	---
		$M_{y,Ed}$ = 0,445 kN·m	---	---	---

Nó 412 [+0; +1800; +2122] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
872: CHSH 48.3x3.2 936: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 3,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	4,8%	Sim
Travessas / longarinas					
930: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,047 kN·m	$M_{z,Rd}$ = 0,600 kN·m	7,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,2%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,7%	Sim
		$M_{x,Ed}$ = 0,013 kN·m	---	---	---
		$M_{y,Ed}$ = 0,105 kN·m	---	---	---
934: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,484 kN·m	$M_{z,Rd}$ = 0,600 kN·m	80,7%	Sim
		$V_{y,Ed}$ = 3,0 kN	$V_{y,Rd}$ = 15,0 kN	20,2%	Sim
		$V_{z,Ed}$ = 0,5 kN	$V_{z,Rd}$ = 5,0 kN	9,8%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,7%	Sim
		$M_{x,Ed}$ = 0,010 kN·m	---	---	---
		$M_{y,Ed}$ = 0,234 kN·m	---	---	---
935: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,014 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,3%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,5 kN	$V_{z,Rd}$ = 5,0 kN	9,5%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,1%	Sim
		$M_{x,Ed}$ = 0,044 kN·m	---	---	---
		$M_{y,Ed}$ = 0,256 kN·m	---	---	---

Nó 413 [+109; +1800; +2122] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
874: CHSH 48.3x3.2 938: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 3,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	4,8%	Sim
Travessas / longarinas					
932: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,030 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,6 kN	$V_{z,Rd}$ = 5,0 kN	12,3%	Sim
		N_{Ed} = 1,1 kN	N_{Rd} = 20,0 kN	5,3%	Sim
		$M_{x,Ed}$ = 0,015 kN·m	---	---	---
		$M_{y,Ed}$ = 0,241 kN·m	---	---	---
934: CHSH	Acero Tub T02	$M_{z,Ed}$ = 0,483 kN·m	$M_{z,Rd}$ = 0,600 kN·m	80,6%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
48.3x3.2		$V_{y,Ed}$ = 3,0 kN	$V_{y,Rd}$ = 15,0 kN	20,2%	Sim
		$V_{z,Ed}$ = 0,5 kN	$V_{z,Rd}$ = 5,0 kN	9,8%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,7%	Sim
		$M_{x,Ed}$ = 0,010 kN·m	---	---	---
		$M_{y,Ed}$ = 0,302 kN·m	---	---	---
937: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,003 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,4%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,3%	Sim
		N_{Ed} = 0,8 kN	N_{Rd} = 20,0 kN	4,2%	Sim
		$M_{x,Ed}$ = 0,037 kN·m	---	---	---
		$M_{y,Ed}$ = 0,098 kN·m	---	---	---

Nó 414 [+0; +1800; +2231] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
876: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 2,5 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	3,8%	Sim
941: CHSH 48.3x3.2					
Travessas / longarinas					
935: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,019 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,1%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,5 kN	$V_{z,Rd}$ = 5,0 kN	9,5%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,1%	Sim
		$M_{x,Ed}$ = 0,044 kN·m	---	---	---
		$M_{y,Ed}$ = 0,263 kN·m	---	---	---
939: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,411 kN·m	$M_{z,Rd}$ = 0,600 kN·m	68,4%	Sim
		$V_{y,Ed}$ = 2,4 kN	$V_{y,Rd}$ = 15,0 kN	15,8%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	3,9%	Sim
		N_{Ed} = 2,3 kN	N_{Rd} = 20,0 kN	11,5%	Sim
		$M_{x,Ed}$ = 0,011 kN·m	---	---	---
		$M_{y,Ed}$ = 0,119 kN·m	---	---	---
940: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,016 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,0%	Sim
		N_{Ed} = 0,7 kN	N_{Rd} = 20,0 kN	3,5%	Sim
		$M_{x,Ed}$ = 0,051 kN·m	---	---	---
		$M_{y,Ed}$ = 0,217 kN·m	---	---	---

Nó 415 [+109; +1800; +2231] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
878: CHSH 48.3x3.2 943: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 3,8 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	5,9%	Sim
Travessas / longarinas					
937: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,006 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,1%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,6 kN	$V_{z,Rd}$ = 5,0 kN	11,7%	Sim
		N_{Ed} = 0,8 kN	N_{Rd} = 20,0 kN	4,2%	Sim
		$M_{x,Ed}$ = 0,037 kN·m	---	---	---
		$M_{v,Ed}$ = 0,284 kN·m	---	---	---
939: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,413 kN·m	$M_{z,Rd}$ = 0,600 kN·m	68,9%	Sim
		$V_{y,Ed}$ = 2,4 kN	$V_{y,Rd}$ = 15,0 kN	15,7%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	3,9%	Sim
		N_{Ed} = 2,3 kN	N_{Rd} = 20,0 kN	11,5%	Sim
		$M_{x,Ed}$ = 0,011 kN·m	---	---	---
		$M_{y,Ed}$ = 0,098 kN·m	---	---	---
942: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,010 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,6 kN	$V_{z,Rd}$ = 5,0 kN	12,6%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,2%	Sim
		$M_{x,Ed}$ = 0,057 kN·m	---	---	---
		$M_{y,Ed}$ = 0,347 kN·m	---	---	---
Diagonais					
766: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 0,1 kN	$N_{c,Rd}$ = 7,0 kN	1,7%	Sim
		$N_{t,Ed}$ = 1,6 kN	$N_{t,Rd}$ = 7,0 kN	22,8%	Sim
		$V_{y,Ed}$ = 0,0 kN	---	---	---
		$V_{z,Ed}$ = 0,1 kN	---	---	---
		$M_{x,Ed}$ = 0,023 kN·m	---	---	---
		$M_{v,Ed}$ = 0,121 kN·m	---	---	---
		$M_{z,Ed}$ = 0,013 kN·m	---	---	---

Nó 416 [+0; +1800; +2438] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
880: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 2,9 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	4,5%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
946: CHSH 48.3x3.2					
Travessas / longarinas					
940: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,018 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,1%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,0%	Sim
		N_{Ed} = 0,7 kN	N_{Rd} = 20,0 kN	3,5%	Sim
		$M_{x,Ed}$ = 0,051 kN·m	---	---	---
		$M_{y,Ed}$ = 0,199 kN·m	---	---	---
944: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,303 kN·m	$M_{z,Rd}$ = 0,600 kN·m	50,6%	Sim
		$V_{y,Ed}$ = 2,8 kN	$V_{y,Rd}$ = 15,0 kN	18,7%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,1%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,6%	Sim
		$M_{x,Ed}$ = 0,011 kN·m	---	---	---
		$M_{y,Ed}$ = 0,113 kN·m	---	---	---
945: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,014 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,8%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,5%	Sim
		$M_{x,Ed}$ = 0,082 kN·m	---	---	---
		$M_{y,Ed}$ = 0,150 kN·m	---	---	---

Nó 417 [+109; +1800; +2438] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
882: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 2,9 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	4,5%	Sim
948: CHSH 48.3x3.2					
Travessas / longarinas					
942: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,011 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 5,0 kN	6,6%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	2,2%	Sim
		$M_{x,Ed}$ = 0,057 kN·m	---	---	---
		$M_{y,Ed}$ = 0,038 kN·m	---	---	---
944: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,309 kN·m	$M_{z,Rd}$ = 0,600 kN·m	51,4%	Sim
		$V_{y,Ed}$ = 2,8 kN	$V_{y,Rd}$ = 15,0 kN	18,8%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,1%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,6%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$M_{x,Ed}$ = 0,011 kN·m	---	---	---
		$M_{y,Ed}$ = 0,113 kN·m	---	---	---
947: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,010 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	7,8%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,6%	Sim
		$M_{x,Ed}$ = 0,086 kN·m	---	---	---
		$M_{y,Ed}$ = 0,075 kN·m	---	---	---

Nó 418 [+0; +1800; +2645] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
892: CHSH 48.3x3.2 951: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 2,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	3,2%	Sim
Travessas / longarinas					
945: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,022 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,8%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,5%	Sim
		$M_{x,Ed}$ = 0,082 kN·m	---	---	---
		$M_{y,Ed}$ = 0,142 kN·m	---	---	---
949: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,119 kN·m	$M_{z,Rd}$ = 0,600 kN·m	19,9%	Sim
		$V_{y,Ed}$ = 2,0 kN	$V_{y,Rd}$ = 15,0 kN	13,4%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,7%	Sim
		N_{Ed} = 0,8 kN	N_{Rd} = 20,0 kN	4,2%	Sim
		$M_{x,Ed}$ = 0,011 kN·m	---	---	---
		$M_{y,Ed}$ = 0,117 kN·m	---	---	---
950: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,018 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,0%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,5%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	1,0%	Sim
		$M_{x,Ed}$ = 0,007 kN·m	---	---	---
		$M_{y,Ed}$ = 0,006 kN·m	---	---	---

Nó 419 [+109; +1800; +2645] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
893: CHSH 48.3x3.2 953: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 2,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	3,2%	Sim
Travessas / longarinas					
947: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,012 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,6 kN	$V_{z,Rd}$ = 5,0 kN	11,4%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,6%	Sim
		$M_{x,Ed}$ = 0,086 kN·m	---	---	---
		$M_{y,Ed}$ = 0,273 kN·m	---	---	---
949: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,128 kN·m	$M_{z,Rd}$ = 0,600 kN·m	21,3%	Sim
		$V_{y,Ed}$ = 2,0 kN	$V_{y,Rd}$ = 15,0 kN	13,5%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,7%	Sim
		N_{Ed} = 0,8 kN	N_{Rd} = 20,0 kN	4,2%	Sim
		$M_{x,Ed}$ = 0,011 kN·m	---	---	---
		$M_{y,Ed}$ = 0,139 kN·m	---	---	---
952: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,003 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,5%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	7,5%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,6%	Sim
		$M_{x,Ed}$ = 0,011 kN·m	---	---	---
		$M_{y,Ed}$ = 0,130 kN·m	---	---	---

Nó 420 [+0; +1800; +2754] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
888: CHSH 48.3x3.2 955: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,8 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	1,2%	Sim
Travessas / longarinas					
950: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,023 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,5%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	1,0%	Sim
		$M_{x,Ed}$ = 0,007 kN·m	---	---	---
		$M_{y,Ed}$ = 0,023 kN·m	---	---	---
954: CHSH	Acero Tub T02	$M_{z,Ed}$ = 0,049 kN·m	$M_{z,Rd}$ = 0,600 kN·m	8,2%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
48.3x3.2		$V_{y,Ed}$ = 0,7 kN	$V_{y,Rd}$ = 15,0 kN	4,8%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,9%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,6%	Sim
		$M_{x,Ed}$ = 0,012 kN·m	---	---	---
		$M_{y,Ed}$ = 0,045 kN·m	---	---	---

Nó 421 [+109; +1800; +2754] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
889: CHSH 48.3x3.2 956: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 2,0 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	3,1%	Sim
Travessas / longarinas					
952: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,006 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,0%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	3,2%	Sim
		N_{Ed} = 0,5 kN	N_{Rd} = 20,0 kN	2,6%	Sim
		$M_{x,Ed}$ = 0,011 kN·m	---	---	---
		$M_{y,Ed}$ = 0,026 kN·m	---	---	---
954: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,065 kN·m	$M_{z,Rd}$ = 0,600 kN·m	10,8%	Sim
		$V_{y,Ed}$ = 0,8 kN	$V_{y,Rd}$ = 15,0 kN	5,0%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,9%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,6%	Sim
		$M_{x,Ed}$ = 0,012 kN·m	---	---	---
		$M_{y,Ed}$ = 0,058 kN·m	---	---	---
Diagonais					
782: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 0,0 kN	$N_{c,Rd}$ = 7,0 kN	0,0%	Sim
		$N_{t,Ed}$ = 1,4 kN	$N_{t,Rd}$ = 7,0 kN	19,3%	Sim
		$V_{y,Ed}$ = 0,0 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,027 kN·m	---	---	---
		$M_{y,Ed}$ = 0,033 kN·m	---	---	---
		$M_{z,Ed}$ = 0,013 kN·m	---	---	---

Nó 422 [+0; +1850; -36] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
896: CHSH	Acero R02	$\Sigma V_{y,Ed}$ = 0,5 kN	$\Sigma V_{y,Rd}$ = 65,0	0,8%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
48.3x3.2 959: CHSH 48.3x3.2			kN		
Travessas / longarinas					
957: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,259 kN·m	$M_{z,Rd}$ = 0,600 kN·m	43,2%	Sim
		$V_{y,Ed}$ = 0,5 kN	$V_{y,Rd}$ = 15,0 kN	3,3%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,1%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,1%	Sim
		$M_{x,Ed}$ = 0,003 kN·m	---	---	---
		$M_{y,Ed}$ = 0,104 kN·m	---	---	---
958: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,010 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,7%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,8%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	1,0%	Sim
		$M_{x,Ed}$ = 0,019 kN·m	---	---	---
		$M_{y,Ed}$ = 0,091 kN·m	---	---	---

Nó 423 [+109; +1850; -36] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
898: CHSH 48.3x3.2 961: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,5 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,8%	Sim
Travessas / longarinas					
957: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,257 kN·m	$M_{z,Rd}$ = 0,600 kN·m	42,9%	Sim
		$V_{y,Ed}$ = 0,5 kN	$V_{y,Rd}$ = 15,0 kN	3,3%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,1%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,1%	Sim
		$M_{x,Ed}$ = 0,003 kN·m	---	---	---
		$M_{y,Ed}$ = 0,121 kN·m	---	---	---
960: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,002 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,4%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 5,0 kN	5,3%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	1,2%	Sim
		$M_{x,Ed}$ = 0,014 kN·m	---	---	---
		$M_{y,Ed}$ = 0,115 kN·m	---	---	---

Nó 424 [+0; +1850; +73] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
901: CHSH 48.3x3.2 963: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
958: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,007 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,2%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,8%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	1,0%	Sim
		$M_{x,Ed}$ = 0,019 kN·m	---	---	---
		$M_{y,Ed}$ = 0,176 kN·m	---	---	---
962: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,016 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	3,2%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,7%	Sim
		$M_{x,Ed}$ = 0,069 kN·m	---	---	---
		$M_{y,Ed}$ = 0,208 kN·m	---	---	---

Nó 425 [+109; +1850; +73] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
903: CHSH 48.3x3.2 965: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
960: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,005 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,9%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 5,0 kN	5,3%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	1,2%	Sim
		$M_{x,Ed}$ = 0,014 kN·m	---	---	---
		$M_{y,Ed}$ = 0,187 kN·m	---	---	---
964: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,022 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	3,1%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	0,8%	Sim
		$M_{x,Ed}$ = 0,067 kN·m	---	---	---
		$M_{y,Ed}$ = 0,203 kN·m	---	---	---

Nó 426 [+0; +1850; +330] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
906: CHSH 48.3x3.2 967: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
962: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,017 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	3,2%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,7%	Sim
		$M_{x,Ed}$ = 0,069 kN·m	---	---	---
		$M_{v,Ed}$ = 0,205 kN·m	---	---	---
966: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,023 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,2%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,5%	Sim
		$M_{x,Ed}$ = 0,022 kN·m	---	---	---
		$M_{y,Ed}$ = 0,188 kN·m	---	---	---

Nó 427 [+109; +1850; +330] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
908: CHSH 48.3x3.2 969: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
964: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,016 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	3,1%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	0,8%	Sim
		$M_{x,Ed}$ = 0,067 kN·m	---	---	---
		$M_{y,Ed}$ = 0,196 kN·m	---	---	---
968: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,026 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,1%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	0,9%	Sim
		$M_{x,Ed}$ = 0,024 kN·m	---	---	---
		$M_{y,Ed}$ = 0,190	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		kN·m			

Nó 428 [+0; +1850; +637] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
911: CHSH 48.3x3.2 971: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
966: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,025 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,2%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,5%	Sim
		$M_{x,Ed}$ = 0,022 kN·m	---	---	---
		$M_{y,Ed}$ = 0,143 kN·m	---	---	---
970: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,016 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,1%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,4%	Sim
		$M_{x,Ed}$ = 0,023 kN·m	---	---	---
		$M_{y,Ed}$ = 0,106 kN·m	---	---	---

Nó 429 [+109; +1850; +637] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
913: CHSH 48.3x3.2 973: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
968: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,026 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,1%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	0,9%	Sim
		$M_{x,Ed}$ = 0,024 kN·m	---	---	---
		$M_{y,Ed}$ = 0,137 kN·m	---	---	---
972: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,021 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,1%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	1,0%	Sim
		$M_{x,Ed}$ = 0,025 kN·m	---	---	---
		$M_{y,Ed}$ = 0,113 kN·m	---	---	---

Nó 430 [+0; +1850; +894] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
916: CHSH 48.3x3.2 975: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
970: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,018 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,1%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,4%	Sim
		$M_{x,Ed}$ = 0,023 kN·m	---	---	---
		$M_{y,Ed}$ = 0,032 kN·m	---	---	---
974: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,023 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,4%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,3%	Sim
		$M_{x,Ed}$ = 0,039 kN·m	---	---	---
		$M_{y,Ed}$ = 0,014 kN·m	---	---	---

Nó 431 [+109; +1850; +894] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
918: CHSH 48.3x3.2 977: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
972: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,018 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,1%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	1,0%	Sim
		$M_{x,Ed}$ = 0,025 kN·m	---	---	---
		$M_{y,Ed}$ = 0,031 kN·m	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
976: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,027 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,3%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,7%	Sim
		$M_{x,Ed}$ = 0,036 kN·m	---	---	---
		$M_{y,Ed}$ = 0,007 kN·m	---	---	---

Nó 432 [+0; +1850; +1201] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
921: CHSH 48.3x3.2 979: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,3%	Sim
Travessas / longarinas					
974: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,025 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,4%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,3%	Sim
		$M_{x,Ed}$ = 0,039 kN·m	---	---	---
		$M_{y,Ed}$ = 0,041 kN·m	---	---	---
978: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,052 kN·m	$M_{z,Rd}$ = 0,600 kN·m	8,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,7%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,4%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,2%	Sim
		$M_{x,Ed}$ = 0,036 kN·m	---	---	---
		$M_{y,Ed}$ = 0,040 kN·m	---	---	---

Nó 433 [+109; +1850; +1201] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
923: CHSH 48.3x3.2 981: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,3%	Sim
Travessas / longarinas					
976: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,028 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,3%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,7%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$M_{x,Ed}$ = 0,036 kN·m	---	---	---
		$M_{y,Ed}$ = 0,039 kN·m	---	---	---
980: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,036 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,4%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	1,8%	Sim
		$M_{x,Ed}$ = 0,038 kN·m	---	---	---
		$M_{y,Ed}$ = 0,039 kN·m	---	---	---

Nó 434 [+0; +1850; +1508] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
926: CHSH 48.3x3.2 983: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
978: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,010 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,4%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,2%	Sim
		$M_{x,Ed}$ = 0,036 kN·m	---	---	---
		$M_{y,Ed}$ = 0,019 kN·m	---	---	---
982: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,018 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,3%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,2%	Sim
		$M_{x,Ed}$ = 0,030 kN·m	---	---	---
		$M_{y,Ed}$ = 0,010 kN·m	---	---	---

Nó 435 [+109; +1850; +1508] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
928: CHSH 48.3x3.2 985: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
980: CHSH	Acero Tub T02	$M_{z,Ed}$ = 0,017	$M_{z,Rd}$ = 0,600	2,8%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
48.3x3.2		kN·m	kN·m		
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,4%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	1,8%	Sim
		$M_{x,Ed}$ = 0,038 kN·m	---	---	---
		$M_{y,Ed}$ = 0,023 kN·m	---	---	---
984: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,022 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,3%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	1,8%	Sim
		$M_{x,Ed}$ = 0,028 kN·m	---	---	---
		$M_{y,Ed}$ = 0,012 kN·m	---	---	---

Nó 436 [+0; +1850; +1815] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
931: CHSH 48.3x3.2 987: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
982: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,038 kN·m	$M_{z,Rd}$ = 0,600 kN·m	6,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,3%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,2%	Sim
		$M_{x,Ed}$ = 0,030 kN·m	---	---	---
		$M_{y,Ed}$ = 0,036 kN·m	---	---	---
986: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,019 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,9%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,1%	Sim
		$M_{x,Ed}$ = 0,002 kN·m	---	---	---
		$M_{y,Ed}$ = 0,058 kN·m	---	---	---

Nó 437 [+109; +1850; +1815] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
933: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
989: CHSH 48.3x3.2					
Travessas / longarinas					
984: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,028 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,3%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	1,8%	Sim
		$M_{x,Ed}$ = 0,028 kN·m	---	---	---
		$M_{y,Ed}$ = 0,041 kN·m	---	---	---
988: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,018 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,9%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,6%	Sim
		$M_{x,Ed}$ = 0,007 kN·m	---	---	---
		$M_{y,Ed}$ = 0,058 kN·m	---	---	---

Nó 438 [+0; +1850; +2122] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
936: CHSH 48.3x3.2 991: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
986: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,039 kN·m	$M_{z,Rd}$ = 0,600 kN·m	6,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,9%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,1%	Sim
		$M_{x,Ed}$ = 0,002 kN·m	---	---	---
		$M_{y,Ed}$ = 0,076 kN·m	---	---	---
990: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,010 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,7%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,2%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,3%	Sim
		$M_{x,Ed}$ = 0,076 kN·m	---	---	---
		$M_{y,Ed}$ = 0,091 kN·m	---	---	---

Nó 439 [+109; +1850; +2122] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
938: CHSH 48.3x3.2 993: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
988: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,031 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,9%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,6%	Sim
		$M_{x,Ed}$ = 0,007 kN·m	---	---	---
		$M_{y,Ed}$ = 0,087 kN·m	---	---	---
992: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,005 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,8%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,1%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,4%	Sim
		$M_{x,Ed}$ = 0,070 kN·m	---	---	---
		$M_{y,Ed}$ = 0,071 kN·m	---	---	---

Nó 440 [+0; +1850; +2231] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
941: CHSH 48.3x3.2 995: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
990: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,014 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,2%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,3%	Sim
		$M_{x,Ed}$ = 0,076 kN·m	---	---	---
		$M_{y,Ed}$ = 0,139 kN·m	---	---	---
994: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,012 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,5%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,3%	Sim
		$M_{x,Ed}$ = 0,029 kN·m	---	---	---
		$M_{y,Ed}$ = 0,148 kN·m	---	---	---

Nó 441 [+109; +1850; +2231] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
943: CHSH 48.3x3.2 997: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,1%	Sim
Travessas / longarinas					
992: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,008 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,4%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,1%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,4%	Sim
		$M_{x,Ed}$ = 0,070 kN·m	---	---	---
		$M_{v,Ed}$ = 0,150 kN·m	---	---	---
996: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,008 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,6%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	1,0%	Sim
		$M_{x,Ed}$ = 0,034 kN·m	---	---	---
		$M_{y,Ed}$ = 0,150 kN·m	---	---	---

Nó 442 [+0; +1850; +2438] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
946: CHSH 48.3x3.2 999: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
994: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,010 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,5%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,3%	Sim
		$M_{x,Ed}$ = 0,029 kN·m	---	---	---
		$M_{y,Ed}$ = 0,113 kN·m	---	---	---
998: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,010 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,3%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,2%	Sim
		$M_{x,Ed}$ = 0,075 kN·m	---	---	---
		$M_{y,Ed}$ = 0,087	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		kN·m			

Nó 443 [+109; +1850; +2438] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
948: CHSH 48.3x3.2 1001: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
996: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,012 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,6%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	1,0%	Sim
		$M_{x,Ed}$ = 0,034 kN·m	---	---	---
		$M_{y,Ed}$ = 0,117 kN·m	---	---	---
1000: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,010 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,1%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,6%	Sim
		$M_{x,Ed}$ = 0,080 kN·m	---	---	---
		$M_{y,Ed}$ = 0,082 kN·m	---	---	---

Nó 444 [+0; +1850; +2645] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
951: CHSH 48.3x3.2 1003: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,1%	Sim
Travessas / longarinas					
998: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,014 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,3%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,2%	Sim
		$M_{x,Ed}$ = 0,075 kN·m	---	---	---
		$M_{y,Ed}$ = 0,045 kN·m	---	---	---
1002: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,009 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,5%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,2%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,3%	Sim
		$M_{x,Ed}$ = 0,024 kN·m	---	---	---
		$M_{y,Ed}$ = 0,017 kN·m	---	---	---

Nó 445 [+109; +1850; +2645] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
953: CHSH 48.3x3.2 1005: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,1%	Sim
Travessas / longarinas					
1000: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,013 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,1%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,6%	Sim
		$M_{x,Ed}$ = 0,080 kN·m	---	---	---
		$M_{y,Ed}$ = 0,035 kN·m	---	---	---
1004: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,005 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,9%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,5%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,3%	Sim
		$M_{x,Ed}$ = 0,026 kN·m	---	---	---
		$M_{y,Ed}$ = 0,023 kN·m	---	---	---

Nó 446 [+0; +1850; +2754] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
955: CHSH 48.3x3.2 1007: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
1002: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,012 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,0%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,2%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,3%	Sim
		$M_{x,Ed}$ = 0,024 kN·m	---	---	---
		$M_{y,Ed}$ = 0,017 kN·m	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
1006: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,036 kN·m	$M_{z,Rd}$ = 0,600 kN·m	6,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,7%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,3%	Sim
		$M_{x,Ed}$ = 0,002 kN·m	---	---	---
		$M_{y,Ed}$ = 0,021 kN·m	---	---	---

Nó 447 [+109; +1850; +2754] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
956: CHSH 48.3x3.2 1008: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
1004: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,009 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,4%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,5%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,3%	Sim
		$M_{x,Ed}$ = 0,026 kN·m	---	---	---
		$M_{y,Ed}$ = 0,015 kN·m	---	---	---
1006: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,039 kN·m	$M_{z,Rd}$ = 0,600 kN·m	6,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,7%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,7%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,3%	Sim
		$M_{x,Ed}$ = 0,002 kN·m	---	---	---
		$M_{y,Ed}$ = 0,015 kN·m	---	---	---

Nó 448 [+0; +1900; -36] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
959: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,4 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	0,6%	Sim
Travessas / longarinas					
1009: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,202 kN·m	$M_{z,Rd}$ = 0,600 kN·m	33,6%	Sim
		$V_{y,Ed}$ = 0,4 kN	$V_{y,Rd}$ = 15,0 kN	2,6%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	3,5%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,3%	Sim
		$M_{x,Ed}$ = 0,003 kN·m	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$M_{y,Ed}$ = 0,081 kN·m	---	---	---
1010: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,008 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,3%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,2%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	0,8%	Sim
		$M_{x,Ed}$ = 0,028 kN·m	---	---	---
		$M_{y,Ed}$ = 0,081 kN·m	---	---	---

Nó 449 [+109; +1900; -36] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
961: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,4 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,6%	Sim
Travessas / longarinas					
1009: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,201 kN·m	$M_{z,Rd}$ = 0,600 kN·m	33,5%	Sim
		$V_{y,Ed}$ = 0,4 kN	$V_{y,Rd}$ = 15,0 kN	2,6%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	3,5%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,3%	Sim
		$M_{x,Ed}$ = 0,003 kN·m	---	---	---
		$M_{y,Ed}$ = 0,108 kN·m	---	---	---
1011: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,001 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,2%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,5%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	0,8%	Sim
		$M_{x,Ed}$ = 0,029 kN·m	---	---	---
		$M_{y,Ed}$ = 0,108 kN·m	---	---	---

Nó 450 [+0; +1900; +73] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
963: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
1010: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,006 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,0%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,2%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	0,8%	Sim
		$M_{x,Ed}$ = 0,028 kN·m	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$M_{y,Ed}$ = 0,147 kN·m	---	---	---
1012: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,014 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,0%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	1,0%	Sim
		$M_{x,Ed}$ = 0,068 kN·m	---	---	---
		$M_{y,Ed}$ = 0,127 kN·m	---	---	---

Nó 451 [+109; +1900; +73] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
965: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
1011: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,005 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,8%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,5%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	0,8%	Sim
		$M_{x,Ed}$ = 0,029 kN·m	---	---	---
		$M_{y,Ed}$ = 0,146 kN·m	---	---	---
1013: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,020 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,0%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	1,0%	Sim
		$M_{x,Ed}$ = 0,067 kN·m	---	---	---
		$M_{y,Ed}$ = 0,134 kN·m	---	---	---

Nó 452 [+0; +1900; +330] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
967: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
1012: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,016 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,0%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	1,0%	Sim
		$M_{x,Ed}$ = 0,068 kN·m	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$M_{y,Ed}$ = 0,133 kN·m	---	---	---
1014: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,022 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,7%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	1,1%	Sim
		$M_{x,Ed}$ = 0,022 kN·m	---	---	---
		$M_{y,Ed}$ = 0,148 kN·m	---	---	---

Nó 453 [+109; +1900; +330] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
969: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
1013: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,016 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	2,0%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	1,0%	Sim
		$M_{x,Ed}$ = 0,067 kN·m	---	---	---
		$M_{y,Ed}$ = 0,128 kN·m	---	---	---
1015: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,023 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,7%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	1,0%	Sim
		$M_{x,Ed}$ = 0,024 kN·m	---	---	---
		$M_{y,Ed}$ = 0,148 kN·m	---	---	---

Nó 454 [+0; +1900; +637] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
971: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
1014: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,023 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,7%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	1,1%	Sim
		$M_{x,Ed}$ = 0,022 kN·m	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$M_{y,Ed}$ = 0,109 kN·m	---	---	---
1016: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,015 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,0%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	0,9%	Sim
		$M_{x,Ed}$ = 0,019 kN·m	---	---	---
		$M_{y,Ed}$ = 0,110 kN·m	---	---	---

Nó 455 [+109; +1900; +637] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
973: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
1015: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,025 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,7%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	1,0%	Sim
		$M_{x,Ed}$ = 0,024 kN·m	---	---	---
		$M_{y,Ed}$ = 0,108 kN·m	---	---	---
1017: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,019 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,1%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,1%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	0,9%	Sim
		$M_{x,Ed}$ = 0,021 kN·m	---	---	---
		$M_{y,Ed}$ = 0,115 kN·m	---	---	---

Nó 456 [+0; +1900; +894] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
975: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
1016: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,016 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,0%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	0,9%	Sim
		$M_{x,Ed}$ = 0,019 kN·m	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$M_{y,Ed}$ = 0,019 kN·m	---	---	---
1018: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,021 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,5%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	1,0%	Sim
		$M_{x,Ed}$ = 0,030 kN·m	---	---	---
		$M_{y,Ed}$ = 0,021 kN·m	---	---	---

Nó 457 [+109; +1900; +894] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
977: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
1017: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,017 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,1%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	0,9%	Sim
		$M_{x,Ed}$ = 0,021 kN·m	---	---	---
		$M_{y,Ed}$ = 0,021 kN·m	---	---	---
1019: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,024 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,5%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	0,9%	Sim
		$M_{x,Ed}$ = 0,028 kN·m	---	---	---
		$M_{y,Ed}$ = 0,014 kN·m	---	---	---

Nó 458 [+0; +1900; +1201] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
979: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,3%	Sim
Travessas / longarinas					
1018: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,025 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,1%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,5%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	1,0%	Sim
		$M_{x,Ed}$ = 0,030 kN·m	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$M_{y,Ed}$ = 0,063 kN·m	---	---	---
1020: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,050 kN·m	$M_{z,Rd}$ = 0,600 kN·m	8,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,7%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,6%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,3%	Sim
		$M_{x,Ed}$ = 0,027 kN·m	---	---	---
		$M_{y,Ed}$ = 0,062 kN·m	---	---	---

Nó 459 [+109; +1900; +1201] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
981: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,3%	Sim
Travessas / longarinas					
1019: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,027 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,5%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	0,9%	Sim
		$M_{x,Ed}$ = 0,028 kN·m	---	---	---
		$M_{y,Ed}$ = 0,060 kN·m	---	---	---
1021: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,035 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,6%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	1,1%	Sim
		$M_{x,Ed}$ = 0,028 kN·m	---	---	---
		$M_{y,Ed}$ = 0,060 kN·m	---	---	---

Nó 460 [+0; +1900; +1508] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
983: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
1020: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,009 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,6%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,3%	Sim
		$M_{x,Ed}$ = 0,027 kN·m	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$M_{y,Ed}$ = 0,027 kN·m	---	---	---
1022: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,017 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,4%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,5%	Sim
		$M_{x,Ed}$ = 0,026 kN·m	---	---	---
		$M_{y,Ed}$ = 0,009 kN·m	---	---	---

Nó 461 [+109; +1900; +1508] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
985: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
1021: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,016 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,6%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	1,1%	Sim
		$M_{x,Ed}$ = 0,028 kN·m	---	---	---
		$M_{y,Ed}$ = 0,030 kN·m	---	---	---
1023: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,022 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,4%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,3%	Sim
		$M_{x,Ed}$ = 0,025 kN·m	---	---	---
		$M_{y,Ed}$ = 0,008 kN·m	---	---	---

Nó 462 [+0; +1900; +1815] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
987: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,3%	Sim
Travessas / longarinas					
1022: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,035 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,4%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,5%	Sim
		$M_{x,Ed}$ = 0,026 kN·m	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$M_{y,Ed}$ = 0,049 kN·m	---	---	---
1024: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,019 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,6%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	1,2%	Sim
		$M_{x,Ed}$ = 0,003 kN·m	---	---	---
		$M_{y,Ed}$ = 0,045 kN·m	---	---	---

Nó 463 [+109; +1900; +1815] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
989: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,2 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
1023: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,026 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,4%	Sim
		N_{Ed} = 0,3 kN	N_{Rd} = 20,0 kN	1,3%	Sim
		$M_{x,Ed}$ = 0,025 kN·m	---	---	---
		$M_{y,Ed}$ = 0,047 kN·m	---	---	---
1025: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,019 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,2%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,5%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	1,1%	Sim
		$M_{x,Ed}$ = 0,006 kN·m	---	---	---
		$M_{y,Ed}$ = 0,038 kN·m	---	---	---

Nó 464 [+0; +1900; +2122] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
991: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
1024: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,036 kN·m	$M_{z,Rd}$ = 0,600 kN·m	5,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,6%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	1,2%	Sim
		$M_{x,Ed}$ = 0,003 kN·m	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$M_{y,Ed}$ = 0,042 kN·m	---	---	---
1026: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,008 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,4%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	1,0%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,6%	Sim
		$M_{x,Ed}$ = 0,063 kN·m	---	---	---
		$M_{y,Ed}$ = 0,006 kN·m	---	---	---

Nó 465 [+109; +1900; +2122] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
993: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
1025: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,029 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,5%	Sim
		N_{Ed} = 0,2 kN	N_{Rd} = 20,0 kN	1,1%	Sim
		$M_{x,Ed}$ = 0,006 kN·m	---	---	---
		$M_{y,Ed}$ = 0,044 kN·m	---	---	---
1027: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,002 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,4%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,2%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,6%	Sim
		$M_{x,Ed}$ = 0,059 kN·m	---	---	---
		$M_{y,Ed}$ = 0,011 kN·m	---	---	---

Nó 466 [+0; +1900; +2231] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
995: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
1026: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,014 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,3%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	1,0%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,6%	Sim
		$M_{x,Ed}$ = 0,063 kN·m	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$M_{y,Ed}$ = 0,055 kN·m	---	---	---
1028: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,012 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,7%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,5%	Sim
		$M_{x,Ed}$ = 0,032 kN·m	---	---	---
		$M_{y,Ed}$ = 0,106 kN·m	---	---	---

Nó 467 [+109; +1900; +2231] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
997: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,1%	Sim
Travessas / longarinas					
1027: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,007 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,2%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,2%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,6%	Sim
		$M_{x,Ed}$ = 0,059 kN·m	---	---	---
		$M_{y,Ed}$ = 0,070 kN·m	---	---	---
1029: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,010 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,9%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,6%	Sim
		$M_{x,Ed}$ = 0,035 kN·m	---	---	---
		$M_{y,Ed}$ = 0,113 kN·m	---	---	---

Nó 468 [+0; +1900; +2438] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
999: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
1028: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,008 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,3%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,7%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,5%	Sim
		$M_{x,Ed}$ = 0,032 kN·m	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$M_{y,Ed}$ = 0,072 kN·m	---	---	---
1030: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,009 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,3%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,5%	Sim
		$M_{x,Ed}$ = 0,067 kN·m	---	---	---
		$M_{y,Ed}$ = 0,033 kN·m	---	---	---

Nó 469 [+109; +1900; +2438] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
1001: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
1029: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,012 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,9%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,6%	Sim
		$M_{x,Ed}$ = 0,035 kN·m	---	---	---
		$M_{y,Ed}$ = 0,079 kN·m	---	---	---
1031: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,011 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,1%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,5%	Sim
		$M_{x,Ed}$ = 0,072 kN·m	---	---	---
		$M_{y,Ed}$ = 0,035 kN·m	---	---	---

Nó 470 [+0; +1900; +2645] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
1003: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,1%	Sim
Travessas / longarinas					
1030: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,010 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,3%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,5%	Sim
		$M_{x,Ed}$ = 0,067 kN·m	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$M_{y,Ed}$ = 0,045 kN·m	---	---	---
1032: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,004 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,7%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,7%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,3%	Sim
		$M_{x,Ed}$ = 0,033 kN·m	---	---	---
		$M_{y,Ed}$ = 0,013 kN·m	---	---	---

Nó 471 [+109; +1900; +2645] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
1005: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,1%	Sim
Travessas / longarinas					
1031: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,012 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,1%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,1%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,5%	Sim
		$M_{x,Ed}$ = 0,072 kN·m	---	---	---
		$M_{y,Ed}$ = 0,040 kN·m	---	---	---
1033: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,004 kN·m	$M_{z,Rd}$ = 0,600 kN·m	0,6%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,2%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,7%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,3%	Sim
		$M_{x,Ed}$ = 0,033 kN·m	---	---	---
		$M_{y,Ed}$ = 0,014 kN·m	---	---	---

Nó 472 [+0; +1900; +2754] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
1007: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
1032: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,008 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,3%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,7%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,3%	Sim
		$M_{x,Ed}$ = 0,033 kN·m	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$M_{y,Ed}$ = 0,047 kN·m	---	---	---
1034: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,036 kN·m	$M_{z,Rd}$ = 0,600 kN·m	6,1%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,2%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,1%	Sim
		$M_{x,Ed}$ = 0,001 kN·m	---	---	---
		$M_{y,Ed}$ = 0,038 kN·m	---	---	---

Nó 473 [+109; +1900; +2754] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
1008: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,1 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	0,2%	Sim
Travessas / longarinas					
1033: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,007 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,2%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,7%	Sim
		N_{Ed} = 0,1 kN	N_{Rd} = 20,0 kN	0,3%	Sim
		$M_{x,Ed}$ = 0,033 kN·m	---	---	---
		$M_{y,Ed}$ = 0,033 kN·m	---	---	---
1034: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,038 kN·m	$M_{z,Rd}$ = 0,600 kN·m	6,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 5,0 kN	1,2%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,1%	Sim
		$M_{x,Ed}$ = 0,001 kN·m	---	---	---
		$M_{y,Ed}$ = 0,027 kN·m	---	---	---

2. Resumo de ligações

2.1. Péssima comprovação global

Nó 35 [+0; +800; +1815], cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
84: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 4,3 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	6,6%	Sim
Travessas / longarinas					
82: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,106 kN·m	$M_{z,Rd}$ = 0,600 kN·m	17,6%	Sim
		$V_{y,Ed}$ = 0,7 kN	$V_{y,Rd}$ = 15,0 kN	4,4%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	3,0%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,2%	Sim
		$M_{x,Ed}$ = 0,010 kN·m	---	---	---
		$M_{y,Ed}$ = 0,080 kN·m	---	---	---
83: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,021 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,5%	Sim
		N_{Ed} = 7,8 kN	N_{Rd} = 20,0 kN	39,0%	Sim
		$M_{x,Ed}$ = 0,026 kN·m	---	---	---
		$M_{y,Ed}$ = 0,028 kN·m	---	---	---
Diagonais					
4: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 26,5 kN	$N_{c,Rd}$ = 7,0 kN	379,3%	Não
		$N_{t,Ed}$ = 0,0 kN	$N_{t,Rd}$ = 7,0 kN	0,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,010 kN·m	---	---	---
		$M_{y,Ed}$ = 0,025 kN·m	---	---	---
		$M_{z,Ed}$ = 0,031 kN·m	---	---	---
85: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 18,1 kN	$N_{c,Rd}$ = 7,0 kN	259,0%	Não
		$N_{t,Ed}$ = 0,0 kN	$N_{t,Rd}$ = 7,0 kN	0,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,019 kN·m	---	---	---
		$M_{y,Ed}$ = 0,030 kN·m	---	---	---
		$M_{z,Ed}$ = 0,055 kN·m	---	---	---

2.2. Péssima comprovação de transverso vertical global na roseta

Nó 1 [+0; +600; +2122] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
3: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 29,9 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	46,1%	Sim
Travessas / longarinas					
1: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,047 kN·m	$M_{z,Rd}$ = 0,600 kN·m	7,8%	Sim
		$V_{y,Ed}$ = 0,6 kN	$V_{y,Rd}$ = 15,0 kN	3,7%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,9%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,002 kN·m	---	---	---
		$M_{y,Ed}$ = 0,023 kN·m	---	---	---
2: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,011 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,8%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,1%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,3%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,012 kN·m	---	---	---
		$M_{y,Ed}$ = 0,011 kN·m	---	---	---
Diagonais					
4: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 26,6 kN	$N_{c,Rd}$ = 7,0 kN	380,4%	Não
		$N_{t,Ed}$ = 0,0 kN	$N_{t,Rd}$ = 7,0 kN	0,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,010 kN·m	---	---	---
		$M_{y,Ed}$ = 0,007 kN·m	---	---	---
		$M_{z,Ed}$ = 0,061 kN·m	---	---	---
5: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 1,4 kN	$N_{c,Rd}$ = 7,0 kN	19,7%	Sim
		$N_{t,Ed}$ = 0,4 kN	$N_{t,Rd}$ = 7,0 kN	5,5%	Sim
		$V_{y,Ed}$ = 0,0 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,008 kN·m	---	---	---
		$M_{y,Ed}$ = 0,014 kN·m	---	---	---
		$M_{z,Ed}$ = 0,010 kN·m	---	---	---

2.3. Péssima comprovação à flexão Mz numa travessa ou longarina

Nó 411 [+109; +1800; +1815] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
870: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 4,4 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	6,8%	Sim
933: CHSH 48.3x3.2					

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Travessas / longarinas					
927: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,027 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,7 kN	$V_{z,Rd}$ = 5,0 kN	13,8%	Sim
		N_{Ed} = 1,1 kN	N_{Rd} = 20,0 kN	5,6%	Sim
		$M_{x,Ed}$ = 0,038 kN·m	---	---	---
		$M_{y,Ed}$ = 0,377 kN·m	---	---	---
929: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,557 kN·m	$M_{z,Rd}$ = 0,600 kN·m	92,8%	Sim
		$V_{y,Ed}$ = 4,3 kN	$V_{y,Rd}$ = 15,0 kN	28,5%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 5,0 kN	5,7%	Sim
		N_{Ed} = 2,2 kN	N_{Rd} = 20,0 kN	10,8%	Sim
		$M_{x,Ed}$ = 0,009 kN·m	---	---	---
		$M_{y,Ed}$ = 0,157 kN·m	---	---	---
932: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,019 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,1%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,7 kN	$V_{z,Rd}$ = 5,0 kN	15,0%	Sim
		N_{Ed} = 1,1 kN	N_{Rd} = 20,0 kN	5,3%	Sim
		$M_{x,Ed}$ = 0,015 kN·m	---	---	---
		$M_{y,Ed}$ = 0,445 kN·m	---	---	---

2.4. Péssima comprovação ao transverso Vy numa travessa ou longarina

Nó 411 [+109; +1800; +1815] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
870: CHSH 48.3x3.2 933: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 4,4 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	6,8%	Sim
Travessas / longarinas					
927: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,027 kN·m	$M_{z,Rd}$ = 0,600 kN·m	4,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,6%	Sim
		$V_{z,Ed}$ = 0,7 kN	$V_{z,Rd}$ = 5,0 kN	13,8%	Sim
		N_{Ed} = 1,1 kN	N_{Rd} = 20,0 kN	5,6%	Sim
		$M_{x,Ed}$ = 0,038 kN·m	---	---	---
		$M_{y,Ed}$ = 0,377 kN·m	---	---	---
929: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,557 kN·m	$M_{z,Rd}$ = 0,600 kN·m	92,8%	Sim
		$V_{y,Ed}$ = 4,3 kN	$V_{y,Rd}$ = 15,0 kN	28,5%	Sim
		$V_{z,Ed}$ = 0,3 kN	$V_{z,Rd}$ = 5,0 kN	5,7%	Sim
		N_{Ed} = 2,2 kN	N_{Rd} = 20,0 kN	10,8%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$M_{x,Ed}$ = 0,009 kN·m	---	---	---
		$M_{y,Ed}$ = 0,157 kN·m	---	---	---
932: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,019 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,1%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,7 kN	$V_{z,Rd}$ = 5,0 kN	15,0%	Sim
		N_{Ed} = 1,1 kN	N_{Rd} = 20,0 kN	5,3%	Sim
		$M_{x,Ed}$ = 0,015 kN·m	---	---	---
		$M_{y,Ed}$ = 0,445 kN·m	---	---	---

2.5. Péssima comprovação ao transverso Vz numa travessa ou longarina

Nó 247 [+0; +1400; +1508] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
512: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 0,7 kN	$\Sigma V_{v,Rd}$ = 65,0 kN	1,0%	Sim
574: CHSH 48.3x3.2					
Travessas / longarinas					
566: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,011 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,9%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 5,0 kN	8,1%	Sim
		N_{Ed} = 0,4 kN	N_{Rd} = 20,0 kN	1,8%	Sim
		$M_{x,Ed}$ = 0,012 kN·m	---	---	---
		$M_{y,Ed}$ = 0,564 kN·m	---	---	---
572: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,041 kN·m	$M_{z,Rd}$ = 0,600 kN·m	6,9%	Sim
		$V_{y,Ed}$ = 0,5 kN	$V_{y,Rd}$ = 15,0 kN	3,4%	Sim
		$V_{z,Ed}$ = 2,3 kN	$V_{z,Rd}$ = 5,0 kN	47,0%	Sim
		N_{Ed} = 0,6 kN	N_{Rd} = 20,0 kN	3,2%	Sim
		$M_{x,Ed}$ = 0,005 kN·m	---	---	---
		$M_{y,Ed}$ = 1,274 kN·m	---	---	---
573: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,016 kN·m	$M_{z,Rd}$ = 0,600 kN·m	2,7%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,4%	Sim
		N_{Ed} = 2,7 kN	N_{Rd} = 20,0 kN	13,3%	Sim
		$M_{x,Ed}$ = 0,002 kN·m	---	---	---
		$M_{y,Ed}$ = 0,289 kN·m	---	---	---

2.6. Péssima comprovação ao axial numa travessa ou longarina

Nó 85 [+0; +1000; +1201] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
203: CHSH 48.3x3.2	Acero R01	$\Sigma V_{y,Ed}$ = 18,0 kN	$\Sigma V_{y,Rd}$ = 100,0 kN	18,0%	Sim
Travessas / longarinas					
197: CHSH 48.3x3.2	Acero Tub T01	$M_{z,Ed}$ = 0,028 kN·m	$M_{z,Rd}$ = 1,000 kN·m	2,8%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 25,0 kN	0,3%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 8,0 kN	0,2%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 30,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,067 kN·m	---	---	---
		$M_{y,Ed}$ = 0,047 kN·m	---	---	---
201: CHSH 48.3x3.2	Acero Tub T01	$M_{z,Ed}$ = 0,093 kN·m	$M_{z,Rd}$ = 1,000 kN·m	9,3%	Sim
		$V_{y,Ed}$ = 0,6 kN	$V_{y,Rd}$ = 25,0 kN	2,6%	Sim
		$V_{z,Ed}$ = 0,4 kN	$V_{z,Rd}$ = 8,0 kN	4,4%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 30,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,016 kN·m	---	---	---
		$M_{y,Ed}$ = 0,210 kN·m	---	---	---
202: CHSH 48.3x3.2	Acero Tub T01	$M_{z,Ed}$ = 0,065 kN·m	$M_{z,Rd}$ = 1,000 kN·m	6,5%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 25,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,1 kN	$V_{z,Rd}$ = 8,0 kN	1,8%	Sim
		N_{Ed} = 21,5 kN	N_{Rd} = 30,0 kN	71,6%	Sim
		$M_{x,Ed}$ = 0,034 kN·m	---	---	---
		$M_{y,Ed}$ = 0,225 kN·m	---	---	---

2.7. Péssima comprovação à compressão numa diagonal

Nó 1 [+0; +600; +2122] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
3: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 29,9 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	46,1%	Sim
Travessas / longarinas					
1: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,047 kN·m	$M_{z,Rd}$ = 0,600 kN·m	7,8%	Sim
		$V_{y,Ed}$ = 0,6 kN	$V_{y,Rd}$ = 15,0 kN	3,7%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,9%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,002 kN·m	---	---	---
		$M_{y,Ed}$ = 0,023 kN·m	---	---	---

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
2: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,011 kN·m	$M_{z,Rd}$ = 0,600 kN·m	1,8%	Sim
		$V_{y,Ed}$ = 0,0 kN	$V_{y,Rd}$ = 15,0 kN	0,1%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,3%	Sim
		N_{Ed} = 0,0 kN	N_{Rd} = 20,0 kN	0,0%	Sim
		$M_{x,Ed}$ = 0,012 kN·m	---	---	---
		$M_{y,Ed}$ = 0,011 kN·m	---	---	---
Diagonais					
4: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 26,6 kN	$N_{c,Rd}$ = 7,0 kN	380,4%	Não
		$N_{t,Ed}$ = 0,0 kN	$N_{t,Rd}$ = 7,0 kN	0,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,010 kN·m	---	---	---
		$M_{y,Ed}$ = 0,007 kN·m	---	---	---
		$M_{z,Ed}$ = 0,061 kN·m	---	---	---
5: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 1,4 kN	$N_{c,Rd}$ = 7,0 kN	19,7%	Sim
		$N_{t,Ed}$ = 0,4 kN	$N_{t,Rd}$ = 7,0 kN	5,5%	Sim
		$V_{y,Ed}$ = 0,0 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,008 kN·m	---	---	---
		$M_{y,Ed}$ = 0,014 kN·m	---	---	---
		$M_{z,Ed}$ = 0,010 kN·m	---	---	---

2.8. Péssima comprovação à tração numa diagonal

Nó 37 [+0; +800; +2122] cm

Ligação com roseta

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Montantes					
62: CHSH 48.3x3.2 91: CHSH 48.3x3.2	Acero R02	$\Sigma V_{y,Ed}$ = 13,7 kN	$\Sigma V_{y,Rd}$ = 65,0 kN	21,1%	Sim
Travessas / longarinas					
83: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,020 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,4%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,5%	Sim
		$V_{z,Ed}$ = 0,0 kN	$V_{z,Rd}$ = 5,0 kN	0,5%	Sim
		N_{Ed} = 7,8 kN	N_{Rd} = 20,0 kN	39,0%	Sim
		$M_{x,Ed}$ = 0,026 kN·m	---	---	---
		$M_{y,Ed}$ = 0,046 kN·m	---	---	---
89: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,036 kN·m	$M_{z,Rd}$ = 0,600 kN·m	6,1%	Sim
		$V_{y,Ed}$ = 0,5 kN	$V_{y,Rd}$ = 15,0 kN	3,6%	Sim

Barra	Elemento de ligação	Esforços	Resistência	COMPROVAÇÃO	Cumpre
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	3,6%	Sim
		N_{Ed} = 5,4 kN	N_{Rd} = 20,0 kN	27,1%	Sim
		$M_{x,Ed}$ = 0,005 kN·m	---	---	---
		$M_{y,Ed}$ = 0,098 kN·m	---	---	---
90: CHSH 48.3x3.2	Acero Tub T02	$M_{z,Ed}$ = 0,022 kN·m	$M_{z,Rd}$ = 0,600 kN·m	3,6%	Sim
		$V_{y,Ed}$ = 0,1 kN	$V_{y,Rd}$ = 15,0 kN	0,4%	Sim
		$V_{z,Ed}$ = 0,2 kN	$V_{z,Rd}$ = 5,0 kN	4,3%	Sim
		N_{Ed} = 0,8 kN	N_{Rd} = 20,0 kN	4,2%	Sim
		$M_{x,Ed}$ = 0,008 kN·m	---	---	---
		$M_{y,Ed}$ = 0,135 kN·m	---	---	---
Diagonais					
9: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 11,3 kN	$N_{c,Rd}$ = 7,0 kN	162,1%	Não
		$N_{t,Ed}$ = 11,1 kN	$N_{t,Rd}$ = 7,0 kN	158,1%	Não
		$V_{y,Ed}$ = 0,0 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,006 kN·m	---	---	---
		$M_{y,Ed}$ = 0,034 kN·m	---	---	---
		$M_{z,Ed}$ = 0,006 kN·m	---	---	---
92: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 12,2 kN	$N_{c,Rd}$ = 7,0 kN	174,0%	Não
		$N_{t,Ed}$ = 0,0 kN	$N_{t,Rd}$ = 7,0 kN	0,0%	Sim
		$V_{y,Ed}$ = 0,1 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,039 kN·m	---	---	---
		$M_{y,Ed}$ = 0,045 kN·m	---	---	---
		$M_{z,Ed}$ = 0,044 kN·m	---	---	---
93: CHSH 48.3x2,3	Acero D02	$N_{c,Ed}$ = 8,0 kN	$N_{c,Rd}$ = 7,0 kN	114,5%	Não
		$N_{t,Ed}$ = 2,7 kN	$N_{t,Rd}$ = 7,0 kN	38,5%	Sim
		$V_{y,Ed}$ = 0,0 kN	---	---	---
		$V_{z,Ed}$ = 0,0 kN	---	---	---
		$M_{x,Ed}$ = 0,015 kN·m	---	---	---
		$M_{y,Ed}$ = 0,019 kN·m	---	---	---
		$M_{z,Ed}$ = 0,027 kN·m	---	---	---

2.9. Péssima comprovação ao deslizamento na barra 1 de uma abraçadeira

Nó 395 [+109; +1780; +2645] cm

Ligação com abraçadeira ortogonal
Elemento de ligação: G01 48x48

Barra	Esforços	Resistência	COMPROVAÇÃO	Cumpre

Barra	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Gerais				
	$F_{p,Ed}$ = 0,2 kN	$F_{p,Rd}$ = 25,0 kN	0,6%	Sim
	$M_{B,Ed}$ = 0,340 kN·m	$M_{B,Rd}$ = 0,700 kN·m	34,9%	Sim
Barra 1				
886: CHSH 48.3x3.2	N_{Ed} = 0,5 kN	N_{Rd} = 8,0 kN	5,8%	Sim
	$M_{x,Ed}$ = 0,098 kN·m	$M_{x,Rd}$ = 0,100 kN·m	98,2%	Sim
893: CHSH 48.3x3.2	$V_{y,Ed}$ = 1,4 kN	---	---	---
	$M_{y,Ed}$ = 0,018 kN·m	---	---	---
Barra 2				
891: CHSH 48.3x3.2	N_{Ed} = 1,4 kN	N_{Rd} = 8,0 kN	17,0%	Sim
	$M_{x,Ed}$ = 0,018 kN·m	$M_{x,Rd}$ = 0,100 kN·m	18,3%	Sim
	$V_{y,Ed}$ = 0,5 kN	---	---	---
	$M_{y,Ed}$ = 0,098 kN·m	---	---	---

2.10. Péssima comprovação ao deslizamento na barra 2 de uma abraçadeira

Nó 395 [+109; +1780; +2645] cm

Ligação com abraçadeira ortogonal
Elemento de ligação: G01 48x48

Barra	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Gerais				
	$F_{p,Ed}$ = 0,2 kN	$F_{p,Rd}$ = 25,0 kN	0,6%	Sim
	$M_{B,Ed}$ = 0,340 kN·m	$M_{B,Rd}$ = 0,700 kN·m	34,9%	Sim
Barra 1				
886: CHSH 48.3x3.2	N_{Ed} = 0,5 kN	N_{Rd} = 8,0 kN	5,8%	Sim
	$M_{x,Ed}$ = 0,098 kN·m	$M_{x,Rd}$ = 0,100 kN·m	98,2%	Sim
893: CHSH 48.3x3.2	$V_{y,Ed}$ = 1,4 kN	---	---	---
	$M_{y,Ed}$ = 0,018 kN·m	---	---	---
Barra 2				
891: CHSH 48.3x3.2	N_{Ed} = 1,4 kN	N_{Rd} = 8,0 kN	17,0%	Sim
	$M_{x,Ed}$ = 0,018 kN·m	$M_{x,Rd}$ = 0,100 kN·m	18,3%	Sim
	$V_{y,Ed}$ = 0,5 kN	---	---	---
	$M_{y,Ed}$ = 0,098 kN·m	---	---	---

2.11. Péssima comprovação à torsão na barra 1 de uma abraçadeira

Nó 394 [+0; +1780; +2645] cm

Ligação com abraçadeira ortogonal
Elemento de ligação: G01 48x48

Barra	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Gerais				
	$F_{p,Ed}$ = 0,4 kN	$F_{p,Rd}$ = 25,0 kN	1,7%	Sim
	$M_{B,Ed}$ = 0,336 kN·m	$M_{B,Rd}$ = 0,700 kN·m	31,9%	Sim
Barra 1				
884: CHSH 48.3x3.2	N_{Ed} = 0,4 kN	N_{Rd} = 8,0 kN	5,4%	Sim
	$M_{x,Ed}$ = 0,136 kN·m	$M_{x,Rd}$ = 0,100 kN·m	135,7%	Não
892: CHSH 48.3x3.2	$V_{y,Ed}$ = 1,3 kN	---	---	---
	$M_{y,Ed}$ = 0,018 kN·m	---	---	---

Barra	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Barra 2				
890: CHSH 48.3x3.2	N_{Ed} = 1,3 kN	N_{Rd} = 8,0 kN	16,8%	Sim
	$M_{x,Ed}$ = 0,018 kN·m	$M_{x,Rd}$ = 0,100 kN·m	18,3%	Sim
891: CHSH 48.3x3.2	$V_{y,Ed}$ = 0,4 kN	---	---	---
	$M_{y,Ed}$ = 0,136 kN·m	---	---	---

2.12. Péssima comprovação à torsão na barra 2 de uma abraçadeira

Nó 394 [+0; +1780; +2645] cm

Ligação com abraçadeira ortogonal
Elemento de ligação: G01 48x48

Barra	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Gerais				
	$F_{p,Ed}$ = 0,4 kN	$F_{p,Rd}$ = 25,0 kN	1,7%	Sim
	$M_{B,Ed}$ = 0,336 kN·m	$M_{B,Rd}$ = 0,700 kN·m	31,9%	Sim
Barra 1				
884: CHSH 48.3x3.2	N_{Ed} = 0,4 kN	N_{Rd} = 8,0 kN	5,4%	Sim
	$M_{x,Ed}$ = 0,136 kN·m	$M_{x,Rd}$ = 0,100 kN·m	135,7%	Não
892: CHSH 48.3x3.2	$V_{y,Ed}$ = 1,3 kN	---	---	---
	$M_{y,Ed}$ = 0,018 kN·m	---	---	---
Barra 2				
890: CHSH 48.3x3.2	N_{Ed} = 1,3 kN	N_{Rd} = 8,0 kN	16,8%	Sim
	$M_{x,Ed}$ = 0,018 kN·m	$M_{x,Rd}$ = 0,100 kN·m	18,3%	Sim
891: CHSH 48.3x3.2	$V_{y,Ed}$ = 0,4 kN	---	---	---
	$M_{y,Ed}$ = 0,136 kN·m	---	---	---

2.13. Péssima comprovação à força de separação de uma abraçadeira

Nó 394 [+0; +1780; +2645] cm

Ligação com abraçadeira ortogonal
Elemento de ligação: G01 48x48

Barra	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Gerais				
	$F_{p,Ed}$ = 0,4 kN	$F_{p,Rd}$ = 25,0 kN	1,7%	Sim
	$M_{B,Ed}$ = 0,336 kN·m	$M_{B,Rd}$ = 0,700 kN·m	31,9%	Sim
Barra 1				
884: CHSH 48.3x3.2	N_{Ed} = 0,4 kN	N_{Rd} = 8,0 kN	5,4%	Sim
	$M_{x,Ed}$ = 0,136 kN·m	$M_{x,Rd}$ = 0,100 kN·m	135,7%	Não
892: CHSH 48.3x3.2	$V_{y,Ed}$ = 1,3 kN	---	---	---
	$M_{y,Ed}$ = 0,018 kN·m	---	---	---
Barra 2				
890: CHSH 48.3x3.2	N_{Ed} = 1,3 kN	N_{Rd} = 8,0 kN	16,8%	Sim
	$M_{x,Ed}$ = 0,018 kN·m	$M_{x,Rd}$ = 0,100 kN·m	18,3%	Sim
891: CHSH 48.3x3.2	$V_{y,Ed}$ = 0,4 kN	---	---	---
	$M_{y,Ed}$ = 0,136 kN·m	---	---	---

2.14. Péssima comprovação ao momento cruciforme de uma abraçadeira

Nó 395 [+109; +1780; +2645] cm

Ligação com abraçadeira ortogonal

Elemento de ligação: G01 48x48

Barra	Esforços	Resistência	COMPROVAÇÃO	Cumpre
Gerais				
	$F_{p,Ed}$ = 0,2 kN	$F_{p,Rd}$ = 25,0 kN	0,6%	Sim
	$M_{B,Ed}$ = 0,340 kN·m	$M_{B,Rd}$ = 0,700 kN·m	34,9%	Sim
Barra 1				
886: CHSH 48.3x3.2	N_{Ed} = 0,5 kN	N_{Rd} = 8,0 kN	5,8%	Sim
	$M_{x,Ed}$ = 0,098 kN·m	$M_{x,Rd}$ = 0,100 kN·m	98,2%	Sim
893: CHSH 48.3x3.2	$V_{y,Ed}$ = 1,4 kN	---	---	---
	$M_{y,Ed}$ = 0,018 kN·m	---	---	---
Barra 2				
891: CHSH 48.3x3.2	N_{Ed} = 1,4 kN	N_{Rd} = 8,0 kN	17,0%	Sim
	$M_{x,Ed}$ = 0,018 kN·m	$M_{x,Rd}$ = 0,100 kN·m	18,3%	Sim
	$V_{y,Ed}$ = 0,5 kN	---	---	---
	$M_{y,Ed}$ = 0,098 kN·m	---	---	---

3. Relatório de reações

Ordem: Por número
Reacções. Eixos gerais, Betão, E.L.U., sem majorar

Nó 1 [+0; +600; +2122] cm

Pilar	Tipo	HIP	Id	$M_{x,Ed}$ (kN·m)	$M_{y,Ed}$ (kN·m)	$M_{z,Ed}$ (kN·m)	$F_{x,Ed}$ (kN)	$F_{y,Ed}$ (kN)	$F_{z,Ed}$ (kN)
3	xyz_	+	A	+0,000	+0,000	+0,000	+0,0	+30,0	+0,0
3	xyz_	-	A	+0,000	+0,000	+0,000	-0,0	+0,0	-14,6
3	xyz_	+	B	+0,000	+0,000	+0,000	+0,0	+29,8	+0,0
3	xyz_	-	B	+0,000	+0,000	+0,000	-0,0	+0,0	-14,6
3	xyz_	+	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
3	xyz_	-	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
3	xyz_	+	D	+0,000	+0,000	+0,000	+0,0	+29,8	+0,0
3	xyz_	-	D	+0,000	+0,000	+0,000	-0,0	+0,0	-14,6

Nó 2 [+109; +600; +2122] cm

Pilar	Tipo	HIP	Id	$M_{x,Ed}$ (kN·m)	$M_{y,Ed}$ (kN·m)	$M_{z,Ed}$ (kN·m)	$F_{x,Ed}$ (kN)	$F_{y,Ed}$ (kN)	$F_{z,Ed}$ (kN)
7	xyz_	+	A	+0,000	+0,000	+0,000	+3,7	+29,9	+0,0
7	xyz_	-	A	+0,000	+0,000	+0,000	-3,8	+0,0	-9,3
7	xyz_	+	B	+0,000	+0,000	+0,000	+3,6	+29,7	+0,0
7	xyz_	-	B	+0,000	+0,000	+0,000	-3,7	+0,0	-9,4
7	xyz_	+	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
7	xyz_	-	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
7	xyz_	+	D	+0,000	+0,000	+0,000	+3,6	+29,7	+0,0
7	xyz_	-	D	+0,000	+0,000	+0,000	-3,7	+0,0	-9,4

Nó 3 [+0; +600; +2231] cm

Pilar	Tipo	HIP	Id	$M_{x,Ed}$ (kN·m)	$M_{y,Ed}$ (kN·m)	$M_{z,Ed}$ (kN·m)	$F_{x,Ed}$ (kN)	$F_{y,Ed}$ (kN)	$F_{z,Ed}$ (kN)
13	xyz_	+	A	+0,000	+0,000	+0,000	+0,1	+4,2	+0,0
13	xyz_	-	A	+0,000	+0,000	+0,000	-0,0	-0,2	-0,1
13	xyz_	+	B	+0,000	+0,000	+0,000	+0,1	+4,2	+0,0
13	xyz_	-	B	+0,000	+0,000	+0,000	-0,0	-0,2	-0,1

Pilar	Tipo	HIP	Id	$M_{x,Ed}$ (kN·m)	$M_{y,Ed}$ (kN·m)	$M_{z,Ed}$ (kN·m)	$F_{x,Ed}$ (kN)	$F_{y,Ed}$ (kN)	$F_{z,Ed}$ (kN)
13	xyz_	+	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
13	xyz_	-	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
13	xyz_	+	D	+0,000	+0,000	+0,000	+0,1	+4,2	+0,0
13	xyz_	-	D	+0,000	+0,000	+0,000	-0,0	-0,2	-0,1

Nó 4 [+109; +600; +2231] cm

Pilar	Tipo	HIP	Id	$M_{x,Ed}$ (kN·m)	$M_{y,Ed}$ (kN·m)	$M_{z,Ed}$ (kN·m)	$F_{x,Ed}$ (kN)	$F_{y,Ed}$ (kN)	$F_{z,Ed}$ (kN)
15	xyz_	+	A	+0,000	+0,000	+0,000	+0,5	+6,3	+0,0
15	xyz_	-	A	+0,000	+0,000	+0,000	-0,5	+0,0	-0,1
15	xyz_	+	B	+0,000	+0,000	+0,000	+0,5	+6,3	+0,0
15	xyz_	-	B	+0,000	+0,000	+0,000	-0,5	+0,0	-0,1
15	xyz_	+	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
15	xyz_	-	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
15	xyz_	+	D	+0,000	+0,000	+0,000	+0,5	+6,3	+0,0
15	xyz_	-	D	+0,000	+0,000	+0,000	-0,5	+0,0	-0,1

Nó 5 [+0; +600; +2438] cm

Pilar	Tipo	HIP	Id	$M_{x,Ed}$ (kN·m)	$M_{y,Ed}$ (kN·m)	$M_{z,Ed}$ (kN·m)	$F_{x,Ed}$ (kN)	$F_{y,Ed}$ (kN)	$F_{z,Ed}$ (kN)
18	xyz_	+	A	+0,000	+0,000	+0,000	+0,1	+6,1	+0,0
18	xyz_	-	A	+0,000	+0,000	+0,000	-0,1	+0,0	-0,1
18	xyz_	+	B	+0,000	+0,000	+0,000	+0,1	+6,1	+0,0
18	xyz_	-	B	+0,000	+0,000	+0,000	-0,0	+0,0	-0,1
18	xyz_	+	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
18	xyz_	-	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
18	xyz_	+	D	+0,000	+0,000	+0,000	+0,1	+6,1	+0,0
18	xyz_	-	D	+0,000	+0,000	+0,000	-0,0	+0,0	-0,1

Nó 6 [+109; +600; +2438] cm

Pilar	Tipo	HIP	Id	$M_{x,Ed}$ (kN·m)	$M_{y,Ed}$ (kN·m)	$M_{z,Ed}$ (kN·m)	$F_{x,Ed}$ (kN)	$F_{y,Ed}$ (kN)	$F_{z,Ed}$ (kN)

Pilar	Tipo	HIP	Id	$M_{x,Ed}$ (kN·m)	$M_{y,Ed}$ (kN·m)	$M_{z,Ed}$ (kN·m)	$F_{x,Ed}$ (kN)	$F_{y,Ed}$ (kN)	$F_{z,Ed}$ (kN)
20	xyz_	+	A	+0,000	+0,000	+0,000	+0,6	+6,1	+0,0
20	xyz_	-	A	+0,000	+0,000	+0,000	-0,7	+0,0	-0,1
20	xyz_	+	B	+0,000	+0,000	+0,000	+0,6	+6,1	+0,0
20	xyz_	-	B	+0,000	+0,000	+0,000	-0,6	+0,0	-0,1
20	xyz_	+	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
20	xyz_	-	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
20	xyz_	+	D	+0,000	+0,000	+0,000	+0,6	+6,1	+0,0
20	xyz_	-	D	+0,000	+0,000	+0,000	-0,6	+0,0	-0,1

Nó 7 [+0; +600; +2645] cm

Pilar	Tipo	HIP	Id	$M_{x,Ed}$ (kN·m)	$M_{y,Ed}$ (kN·m)	$M_{z,Ed}$ (kN·m)	$F_{x,Ed}$ (kN)	$F_{y,Ed}$ (kN)	$F_{z,Ed}$ (kN)
23	xyz_	+	A	+0,000	+0,000	+0,000	+0,0	+4,7	+0,0
23	xyz_	-	A	+0,000	+0,000	+0,000	-0,0	+0,0	-0,1
23	xyz_	+	B	+0,000	+0,000	+0,000	+0,0	+4,7	+0,0
23	xyz_	-	B	+0,000	+0,000	+0,000	-0,0	+0,0	-0,1
23	xyz_	+	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
23	xyz_	-	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
23	xyz_	+	D	+0,000	+0,000	+0,000	+0,0	+4,7	+0,0
23	xyz_	-	D	+0,000	+0,000	+0,000	-0,0	+0,0	-0,1

Nó 8 [+109; +600; +2645] cm

Pilar	Tipo	HIP	Id	$M_{x,Ed}$ (kN·m)	$M_{y,Ed}$ (kN·m)	$M_{z,Ed}$ (kN·m)	$F_{x,Ed}$ (kN)	$F_{y,Ed}$ (kN)	$F_{z,Ed}$ (kN)
26	xyz_	+	A	+0,000	+0,000	+0,000	+0,5	+10,0	+0,8
26	xyz_	-	A	+0,000	+0,000	+0,000	-0,5	-0,8	-0,9
26	xyz_	+	B	+0,000	+0,000	+0,000	+0,5	+10,2	+0,8
26	xyz_	-	B	+0,000	+0,000	+0,000	-0,5	-0,9	-0,9
26	xyz_	+	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
26	xyz_	-	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
26	xyz_	+	D	+0,000	+0,000	+0,000	+0,5	+10,2	+0,8

Pilar	Tipo	HIP	Id	$M_{x,Ed}$ (kN·m)	$M_{y,Ed}$ (kN·m)	$M_{z,Ed}$ (kN·m)	$F_{x,Ed}$ (kN)	$F_{y,Ed}$ (kN)	$F_{z,Ed}$ (kN)
26	xyz_	-	D	+0,000	+0,000	+0,000	-0,5	-0,9	-0,9

Nó 9 [+416; +600; +2645] cm

Pilar	Tipo	HIP	Id	$M_{x,Ed}$ (kN·m)	$M_{y,Ed}$ (kN·m)	$M_{z,Ed}$ (kN·m)	$F_{x,Ed}$ (kN)	$F_{y,Ed}$ (kN)	$F_{z,Ed}$ (kN)
30	xyz_	+	A	+0,000	+0,000	+0,000	+0,0	+1,6	+0,0
30	xyz_	-	A	+0,000	+0,000	+0,000	-0,0	+0,0	-0,0
30	xyz_	+	B	+0,000	+0,000	+0,000	+0,0	+1,7	+0,0
30	xyz_	-	B	+0,000	+0,000	+0,000	-0,0	+0,0	-0,0
30	xyz_	+	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
30	xyz_	-	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
30	xyz_	+	D	+0,000	+0,000	+0,000	+0,0	+1,7	+0,0
30	xyz_	-	D	+0,000	+0,000	+0,000	-0,0	+0,0	-0,0

Nó 10 [+723; +600; +2645] cm

Pilar	Tipo	HIP	Id	$M_{x,Ed}$ (kN·m)	$M_{y,Ed}$ (kN·m)	$M_{z,Ed}$ (kN·m)	$F_{x,Ed}$ (kN)	$F_{y,Ed}$ (kN)	$F_{z,Ed}$ (kN)
32	xyz_	+	A	+0,000	+0,000	+0,000	+0,0	+0,3	+0,0
32	xyz_	-	A	+0,000	+0,000	+0,000	-0,0	+0,0	-0,0
32	xyz_	+	B	+0,000	+0,000	+0,000	+0,0	+0,4	+0,0
32	xyz_	-	B	+0,000	+0,000	+0,000	-0,0	+0,0	-0,0
32	xyz_	+	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
32	xyz_	-	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
32	xyz_	+	D	+0,000	+0,000	+0,000	+0,0	+0,4	+0,0
32	xyz_	-	D	+0,000	+0,000	+0,000	-0,0	+0,0	-0,0

Nó 11 [+0; +600; +2754] cm

Pilar	Tipo	HIP	Id	$M_{x,Ed}$ (kN·m)	$M_{y,Ed}$ (kN·m)	$M_{z,Ed}$ (kN·m)	$F_{x,Ed}$ (kN)	$F_{y,Ed}$ (kN)	$F_{z,Ed}$ (kN)
34	xyz_	+	A	+0,000	+0,000	+0,000	+0,0	+2,3	+0,0
34	xyz_	-	A	+0,000	+0,000	+0,000	-0,0	+0,0	-0,1
34	xyz_	+	B	+0,000	+0,000	+0,000	+0,0	+2,3	+0,0
34	xyz_	-	B	+0,000	+0,000	+0,000	-0,0	+0,0	-0,1

Pilar	Tipo	HIP	Id	$M_{x,Ed}$ (kN·m)	$M_{y,Ed}$ (kN·m)	$M_{z,Ed}$ (kN·m)	$F_{x,Ed}$ (kN)	$F_{y,Ed}$ (kN)	$F_{z,Ed}$ (kN)
34	xyz_	+	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
34	xyz_	-	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
34	xyz_	+	D	+0,000	+0,000	+0,000	+0,0	+2,3	+0,0
34	xyz_	-	D	+0,000	+0,000	+0,000	-0,0	+0,0	-0,1

Nó 12 [+109; +600; +2754] cm

Pilar	Tipo	HIP	Id	$M_{x,Ed}$ (kN·m)	$M_{y,Ed}$ (kN·m)	$M_{z,Ed}$ (kN·m)	$F_{x,Ed}$ (kN)	$F_{y,Ed}$ (kN)	$F_{z,Ed}$ (kN)
36	xyz_	+	A	+0,000	+0,000	+0,000	+0,1	+4,0	+0,0
36	xyz_	-	A	+0,000	+0,000	+0,000	-0,1	-0,1	-0,1
36	xyz_	+	B	+0,000	+0,000	+0,000	+0,1	+4,0	+0,0
36	xyz_	-	B	+0,000	+0,000	+0,000	-0,1	-0,2	-0,1
36	xyz_	+	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
36	xyz_	-	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
36	xyz_	+	D	+0,000	+0,000	+0,000	+0,1	+4,0	+0,0
36	xyz_	-	D	+0,000	+0,000	+0,000	-0,1	-0,2	-0,1

Nó 13 [+416; +600; +2754] cm

Pilar	Tipo	HIP	Id	$M_{x,Ed}$ (kN·m)	$M_{y,Ed}$ (kN·m)	$M_{z,Ed}$ (kN·m)	$F_{x,Ed}$ (kN)	$F_{y,Ed}$ (kN)	$F_{z,Ed}$ (kN)
39	xyz_	+	A	+0,000	+0,000	+0,000	+1,8	+4,8	+0,0
39	xyz_	-	A	+0,000	+0,000	+0,000	-1,9	-2,2	-0,0
39	xyz_	+	B	+0,000	+0,000	+0,000	+1,9	+4,9	+0,0
39	xyz_	-	B	+0,000	+0,000	+0,000	-2,0	-2,3	-0,0
39	xyz_	+	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
39	xyz_	-	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
39	xyz_	+	D	+0,000	+0,000	+0,000	+1,9	+4,9	+0,0
39	xyz_	-	D	+0,000	+0,000	+0,000	-2,0	-2,3	-0,0

Nó 14 [+723; +600; +2754] cm

Pilar	Tipo	HIP	Id	$M_{x,Ed}$ (kN·m)	$M_{y,Ed}$ (kN·m)	$M_{z,Ed}$ (kN·m)	$F_{x,Ed}$ (kN)	$F_{y,Ed}$ (kN)	$F_{z,Ed}$ (kN)
41	xyz_	+	A	+0,000	+0,000	+0,000	+3,2	+4,2	+0,0

Pilar	Tipo	HIP	Id	$M_{x,Ed}$ (kN·m)	$M_{y,Ed}$ (kN·m)	$M_{z,Ed}$ (kN·m)	$F_{x,Ed}$ (kN)	$F_{y,Ed}$ (kN)	$F_{z,Ed}$ (kN)
41	xyz_	-	A	+0,000	+0,000	+0,000	-3,2	-3,7	-0,0
41	xyz_	+	B	+0,000	+0,000	+0,000	+3,3	+4,3	+0,0
41	xyz_	-	B	+0,000	+0,000	+0,000	-3,2	-3,8	-0,0
41	xyz_	+	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
41	xyz_	-	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
41	xyz_	+	D	+0,000	+0,000	+0,000	+3,3	+4,3	+0,0
41	xyz_	-	D	+0,000	+0,000	+0,000	-3,2	-3,8	-0,0

Nó 75 [+0; +1000; -36] cm

Pilar	Tipo	HIP	Id	$M_{x,Ed}$ (kN·m)	$M_{y,Ed}$ (kN·m)	$M_{z,Ed}$ (kN·m)	$F_{x,Ed}$ (kN)	$F_{y,Ed}$ (kN)	$F_{z,Ed}$ (kN)
176	xyz_	+	A	+0,000	+0,000	+0,000	+0,6	+2,0	+0,1
176	xyz_	-	A	+0,000	+0,000	+0,000	-0,6	+0,0	+0,0
176	xyz_	+	B	+0,000	+0,000	+0,000	+0,7	+2,0	+0,1
176	xyz_	-	B	+0,000	+0,000	+0,000	-0,6	+0,0	+0,0
176	xyz_	+	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
176	xyz_	-	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
176	xyz_	+	D	+0,000	+0,000	+0,000	+0,7	+2,0	+0,1
176	xyz_	-	D	+0,000	+0,000	+0,000	-0,6	+0,0	+0,0

Nó 76 [+109; +1000; -36] cm

Pilar	Tipo	HIP	Id	$M_{x,Ed}$ (kN·m)	$M_{y,Ed}$ (kN·m)	$M_{z,Ed}$ (kN·m)	$F_{x,Ed}$ (kN)	$F_{y,Ed}$ (kN)	$F_{z,Ed}$ (kN)
178	xyz_	+	A	+0,000	+0,000	+0,000	+0,6	+6,5	+1,3
178	xyz_	-	A	+0,000	+0,000	+0,000	-0,6	+0,0	+0,0
178	xyz_	+	B	+0,000	+0,000	+0,000	+0,6	+6,6	+1,3
178	xyz_	-	B	+0,000	+0,000	+0,000	-0,6	+0,0	+0,0
178	xyz_	+	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
178	xyz_	-	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
178	xyz_	+	D	+0,000	+0,000	+0,000	+0,6	+6,6	+1,3
178	xyz_	-	D	+0,000	+0,000	+0,000	-0,6	+0,0	+0,0

Nó 77 [+0; +1000; +73] cm

Pilar	Tipo	HIP	Id	$M_{x,Ed}$ (kN·m)	$M_{y,Ed}$ (kN·m)	$M_{z,Ed}$ (kN·m)	$F_{x,Ed}$ (kN)	$F_{y,Ed}$ (kN)	$F_{z,Ed}$ (kN)
182	xyz_	+	A	+0,000	+0,000	+0,000	+0,2	+4,3	+0,1
182	xyz_	-	A	+0,000	+0,000	+0,000	-0,2	+0,0	+0,0
182	xyz_	+	B	+0,000	+0,000	+0,000	+0,2	+4,3	+0,1
182	xyz_	-	B	+0,000	+0,000	+0,000	-0,2	+0,0	+0,0
182	xyz_	+	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
182	xyz_	-	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
182	xyz_	+	D	+0,000	+0,000	+0,000	+0,2	+4,3	+0,1
182	xyz_	-	D	+0,000	+0,000	+0,000	-0,2	+0,0	+0,0

Nó 78 [+109; +1000; +73] cm

Pilar	Tipo	HIP	Id	$M_{x,Ed}$ (kN·m)	$M_{y,Ed}$ (kN·m)	$M_{z,Ed}$ (kN·m)	$F_{x,Ed}$ (kN)	$F_{y,Ed}$ (kN)	$F_{z,Ed}$ (kN)
184	xyz_	+	A	+0,000	+0,000	+0,000	+0,8	+0,5	+0,1
184	xyz_	-	A	+0,000	+0,000	+0,000	-0,8	-0,2	-0,0
184	xyz_	+	B	+0,000	+0,000	+0,000	+0,8	+0,5	+0,1
184	xyz_	-	B	+0,000	+0,000	+0,000	-0,8	-0,2	-0,0
184	xyz_	+	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
184	xyz_	-	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
184	xyz_	+	D	+0,000	+0,000	+0,000	+0,8	+0,5	+0,1
184	xyz_	-	D	+0,000	+0,000	+0,000	-0,8	-0,2	-0,0

Nó 79 [+0; +1000; +330] cm

Pilar	Tipo	HIP	Id	$M_{x,Ed}$ (kN·m)	$M_{y,Ed}$ (kN·m)	$M_{z,Ed}$ (kN·m)	$F_{x,Ed}$ (kN)	$F_{y,Ed}$ (kN)	$F_{z,Ed}$ (kN)
187	xyz_	+	A	+0,000	+0,000	+0,000	+0,3	+6,5	+0,2
187	xyz_	-	A	+0,000	+0,000	+0,000	-0,3	+0,0	-0,1
187	xyz_	+	B	+0,000	+0,000	+0,000	+0,3	+6,5	+0,2
187	xyz_	-	B	+0,000	+0,000	+0,000	-0,3	+0,0	-0,1
187	xyz_	+	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
187	xyz_	-	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0

Pilar	Tipo	HIP	Id	$M_{x,Ed}$ (kN·m)	$M_{y,Ed}$ (kN·m)	$M_{z,Ed}$ (kN·m)	$F_{x,Ed}$ (kN)	$F_{y,Ed}$ (kN)	$F_{z,Ed}$ (kN)
187	xyz_	+	D	+0,000	+0,000	+0,000	+0,3	+6,5	+0,2
187	xyz_	-	D	+0,000	+0,000	+0,000	-0,3	+0,0	-0,1

Nó 80 [+109; +1000; +330] cm

Pilar	Tipo	HIP	Id	$M_{x,Ed}$ (kN·m)	$M_{y,Ed}$ (kN·m)	$M_{z,Ed}$ (kN·m)	$F_{x,Ed}$ (kN)	$F_{y,Ed}$ (kN)	$F_{z,Ed}$ (kN)
189	xyz_	+	A	+0,000	+0,000	+0,000	+0,7	+8,3	+0,1
189	xyz_	-	A	+0,000	+0,000	+0,000	-0,7	+0,0	-0,1
189	xyz_	+	B	+0,000	+0,000	+0,000	+0,6	+8,3	+0,1
189	xyz_	-	B	+0,000	+0,000	+0,000	-0,7	+0,0	-0,1
189	xyz_	+	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
189	xyz_	-	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
189	xyz_	+	D	+0,000	+0,000	+0,000	+0,6	+8,3	+0,1
189	xyz_	-	D	+0,000	+0,000	+0,000	-0,7	+0,0	-0,1

Nó 81 [+0; +1000; +637] cm

Pilar	Tipo	HIP	Id	$M_{x,Ed}$ (kN·m)	$M_{y,Ed}$ (kN·m)	$M_{z,Ed}$ (kN·m)	$F_{x,Ed}$ (kN)	$F_{y,Ed}$ (kN)	$F_{z,Ed}$ (kN)
192	xyz_	+	A	+0,000	+0,000	+0,000	+0,4	+6,4	+0,1
192	xyz_	-	A	+0,000	+0,000	+0,000	-0,4	+0,0	-0,1
192	xyz_	+	B	+0,000	+0,000	+0,000	+0,4	+6,4	+0,2
192	xyz_	-	B	+0,000	+0,000	+0,000	-0,3	+0,0	-0,1
192	xyz_	+	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
192	xyz_	-	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
192	xyz_	+	D	+0,000	+0,000	+0,000	+0,4	+6,4	+0,2
192	xyz_	-	D	+0,000	+0,000	+0,000	-0,3	+0,0	-0,1

Nó 82 [+109; +1000; +637] cm

Pilar	Tipo	HIP	Id	$M_{x,Ed}$ (kN·m)	$M_{y,Ed}$ (kN·m)	$M_{z,Ed}$ (kN·m)	$F_{x,Ed}$ (kN)	$F_{y,Ed}$ (kN)	$F_{z,Ed}$ (kN)
194	xyz_	+	A	+0,000	+0,000	+0,000	+0,4	+4,9	+1,2
194	xyz_	-	A	+0,000	+0,000	+0,000	-0,4	+0,0	+0,0
194	xyz_	+	B	+0,000	+0,000	+0,000	+0,3	+4,9	+1,2

Pilar	Tipo	HIP	Id	$M_{x,Ed}$ (kN·m)	$M_{y,Ed}$ (kN·m)	$M_{z,Ed}$ (kN·m)	$F_{x,Ed}$ (kN)	$F_{y,Ed}$ (kN)	$F_{z,Ed}$ (kN)
194	xyz_	-	B	+0,000	+0,000	+0,000	-0,4	+0,0	+0,0
194	xyz_	+	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
194	xyz_	-	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
194	xyz_	+	D	+0,000	+0,000	+0,000	+0,3	+4,9	+1,2
194	xyz_	-	D	+0,000	+0,000	+0,000	-0,4	+0,0	+0,0

Nó 83 [+0; +1000; +894] cm

Pilar	Tipo	HIP	Id	$M_{x,Ed}$ (kN·m)	$M_{y,Ed}$ (kN·m)	$M_{z,Ed}$ (kN·m)	$F_{x,Ed}$ (kN)	$F_{y,Ed}$ (kN)	$F_{z,Ed}$ (kN)
198	xyz_	+	A	+0,000	+0,000	+0,000	+0,2	+6,4	+0,3
198	xyz_	-	A	+0,000	+0,000	+0,000	-0,1	+0,0	-0,1
198	xyz_	+	B	+0,000	+0,000	+0,000	+0,1	+6,4	+0,3
198	xyz_	-	B	+0,000	+0,000	+0,000	-0,1	+0,0	-0,1
198	xyz_	+	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
198	xyz_	-	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
198	xyz_	+	D	+0,000	+0,000	+0,000	+0,1	+6,4	+0,3
198	xyz_	-	D	+0,000	+0,000	+0,000	-0,1	+0,0	-0,1

Nó 84 [+109; +1000; +894] cm

Pilar	Tipo	HIP	Id	$M_{x,Ed}$ (kN·m)	$M_{y,Ed}$ (kN·m)	$M_{z,Ed}$ (kN·m)	$F_{x,Ed}$ (kN)	$F_{y,Ed}$ (kN)	$F_{z,Ed}$ (kN)
200	xyz_	+	A	+0,000	+0,000	+0,000	+0,1	+9,7	+0,1
200	xyz_	-	A	+0,000	+0,000	+0,000	-0,2	+0,0	-0,1
200	xyz_	+	B	+0,000	+0,000	+0,000	+0,1	+9,8	+0,1
200	xyz_	-	B	+0,000	+0,000	+0,000	-0,1	+0,0	-0,1
200	xyz_	+	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
200	xyz_	-	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
200	xyz_	+	D	+0,000	+0,000	+0,000	+0,1	+9,8	+0,1
200	xyz_	-	D	+0,000	+0,000	+0,000	-0,1	+0,0	-0,1

Nó 85 [+0; +1000; +1201] cm

Pilar	Tipo	HIP	Id	$M_{x,Ed}$ (kN·m)	$M_{y,Ed}$ (kN·m)	$M_{z,Ed}$ (kN·m)	$F_{x,Ed}$ (kN)	$F_{y,Ed}$ (kN)	$F_{z,Ed}$ (kN)

Pilar	Tipo	HIP	Id	$M_{x,Ed}$ (kN·m)	$M_{y,Ed}$ (kN·m)	$M_{z,Ed}$ (kN·m)	$F_{x,Ed}$ (kN)	$F_{y,Ed}$ (kN)	$F_{z,Ed}$ (kN)
203	xyz_	+	A	+0,000	+0,000	+0,000	+0,1	+11,9	+14,3
203	xyz_	-	A	+0,000	+0,000	+0,000	-0,0	-4,2	+0,0
203	xyz_	+	B	+0,000	+0,000	+0,000	+0,0	+12,3	+14,3
203	xyz_	-	B	+0,000	+0,000	+0,000	-0,0	-4,4	+0,0
203	xyz_	+	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
203	xyz_	-	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
203	xyz_	+	D	+0,000	+0,000	+0,000	+0,0	+12,3	+14,3
203	xyz_	-	D	+0,000	+0,000	+0,000	-0,0	-4,4	+0,0

Nó 86 [+109; +1000; +1201] cm

Pilar	Tipo	HIP	Id	$M_{x,Ed}$ (kN·m)	$M_{y,Ed}$ (kN·m)	$M_{z,Ed}$ (kN·m)	$F_{x,Ed}$ (kN)	$F_{y,Ed}$ (kN)	$F_{z,Ed}$ (kN)
205	xyz_	+	A	+0,000	+0,000	+0,000	+5,0	+14,6	+6,7
205	xyz_	-	A	+0,000	+0,000	+0,000	-5,3	-5,3	+0,0
205	xyz_	+	B	+0,000	+0,000	+0,000	+5,2	+15,1	+6,8
205	xyz_	-	B	+0,000	+0,000	+0,000	-5,6	-5,6	+0,0
205	xyz_	+	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
205	xyz_	-	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
205	xyz_	+	D	+0,000	+0,000	+0,000	+5,2	+15,1	+6,8
205	xyz_	-	D	+0,000	+0,000	+0,000	-5,6	-5,6	+0,0

Nó 393 [-40; +1780; +2645] cm

Pilar	Tipo	HIP	Id	$M_{x,Ed}$ (kN·m)	$M_{y,Ed}$ (kN·m)	$M_{z,Ed}$ (kN·m)	$F_{x,Ed}$ (kN)	$F_{y,Ed}$ (kN)	$F_{z,Ed}$ (kN)
---	x_z_	+	A	+0,000	+0,000	+0,000	+1,2	+0,0	+0,1
---	x_z_	-	A	+0,000	+0,000	+0,000	-1,2	+0,0	-0,2
---	x_z_	+	B	+0,000	+0,000	+0,000	+1,2	+0,0	+0,1
---	x_z_	-	B	+0,000	+0,000	+0,000	-1,2	+0,0	-0,3
---	x_z_	+	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
---	x_z_	-	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
---	x_z_	+	D	+0,000	+0,000	+0,000	+1,2	+0,0	+0,1

Pilar	Tipo	HIP	Id	$M_{x,Ed}$ (kN·m)	$M_{y,Ed}$ (kN·m)	$M_{z,Ed}$ (kN·m)	$F_{x,Ed}$ (kN)	$F_{y,Ed}$ (kN)	$F_{z,Ed}$ (kN)
---	x_z_	-	D	+0,000	+0,000	+0,000	-1,2	+0,0	-0,3

Nó 398 [+0; +1800; +73] cm

Pilar	Tipo	HIP	Id	$M_{x,Ed}$ (kN·m)	$M_{y,Ed}$ (kN·m)	$M_{z,Ed}$ (kN·m)	$F_{x,Ed}$ (kN)	$F_{y,Ed}$ (kN)	$F_{z,Ed}$ (kN)
901	x_z_	+	A	+0,000	+0,000	+0,000	+3,2	+0,0	+0,2
901	x_z_	-	A	+0,000	+0,000	+0,000	-3,1	+0,0	+0,0
901	x_z_	+	B	+0,000	+0,000	+0,000	+3,2	+0,0	+0,3
901	x_z_	-	B	+0,000	+0,000	+0,000	-3,2	+0,0	+0,0
901	x_z_	+	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
901	x_z_	-	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
901	x_z_	+	D	+0,000	+0,000	+0,000	+3,2	+0,0	+0,3
901	x_z_	-	D	+0,000	+0,000	+0,000	-3,2	+0,0	+0,0

Nó 402 [+0; +1800; +637] cm

Pilar	Tipo	HIP	Id	$M_{x,Ed}$ (kN·m)	$M_{y,Ed}$ (kN·m)	$M_{z,Ed}$ (kN·m)	$F_{x,Ed}$ (kN)	$F_{y,Ed}$ (kN)	$F_{z,Ed}$ (kN)
911	x_z_	+	A	+0,000	+0,000	+0,000	+2,4	+0,0	+0,4
911	x_z_	-	A	+0,000	+0,000	+0,000	-2,4	+0,0	-0,2
911	x_z_	+	B	+0,000	+0,000	+0,000	+2,4	+0,0	+0,4
911	x_z_	-	B	+0,000	+0,000	+0,000	-2,4	+0,0	-0,2
911	x_z_	+	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
911	x_z_	-	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
911	x_z_	+	D	+0,000	+0,000	+0,000	+2,4	+0,0	+0,4
911	x_z_	-	D	+0,000	+0,000	+0,000	-2,4	+0,0	-0,2

Nó 404 [+0; +1800; +894] cm

Pilar	Tipo	HIP	Id	$M_{x,Ed}$ (kN·m)	$M_{y,Ed}$ (kN·m)	$M_{z,Ed}$ (kN·m)	$F_{x,Ed}$ (kN)	$F_{y,Ed}$ (kN)	$F_{z,Ed}$ (kN)
916	x_z_	+	A	+0,000	+0,000	+0,000	+1,0	+0,0	+0,1
916	x_z_	-	A	+0,000	+0,000	+0,000	-1,0	+0,0	+0,0
916	x_z_	+	B	+0,000	+0,000	+0,000	+1,0	+0,0	+0,1
916	x_z_	-	B	+0,000	+0,000	+0,000	-1,0	+0,0	+0,0

Pilar	Tipo	HIP	Id	$M_{x,Ed}$ (kN·m)	$M_{y,Ed}$ (kN·m)	$M_{z,Ed}$ (kN·m)	$F_{x,Ed}$ (kN)	$F_{y,Ed}$ (kN)	$F_{z,Ed}$ (kN)
916	x_z_	+	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
916	x_z_	-	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
916	x_z_	+	D	+0,000	+0,000	+0,000	+1,0	+0,0	+0,1
916	x_z_	-	D	+0,000	+0,000	+0,000	-1,0	+0,0	+0,0

Nó 406 [+0; +1800; +1201] cm

Pilar	Tipo	HIP	Id	$M_{x,Ed}$ (kN·m)	$M_{y,Ed}$ (kN·m)	$M_{z,Ed}$ (kN·m)	$F_{x,Ed}$ (kN)	$F_{y,Ed}$ (kN)	$F_{z,Ed}$ (kN)
921	x_z_	+	A	+0,000	+0,000	+0,000	+3,7	+0,0	+0,2
921	x_z_	-	A	+0,000	+0,000	+0,000	-3,4	+0,0	+0,0
921	x_z_	+	B	+0,000	+0,000	+0,000	+3,8	+0,0	+0,2
921	x_z_	-	B	+0,000	+0,000	+0,000	-3,4	+0,0	+0,0
921	x_z_	+	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
921	x_z_	-	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
921	x_z_	+	D	+0,000	+0,000	+0,000	+3,8	+0,0	+0,2
921	x_z_	-	D	+0,000	+0,000	+0,000	-3,4	+0,0	+0,0

Nó 408 [+0; +1800; +1508] cm

Pilar	Tipo	HIP	Id	$M_{x,Ed}$ (kN·m)	$M_{y,Ed}$ (kN·m)	$M_{z,Ed}$ (kN·m)	$F_{x,Ed}$ (kN)	$F_{y,Ed}$ (kN)	$F_{z,Ed}$ (kN)
926	x_z_	+	A	+0,000	+0,000	+0,000	+1,3	+0,0	+0,1
926	x_z_	-	A	+0,000	+0,000	+0,000	-1,3	+0,0	+0,0
926	x_z_	+	B	+0,000	+0,000	+0,000	+1,3	+0,0	+0,1
926	x_z_	-	B	+0,000	+0,000	+0,000	-1,3	+0,0	+0,0
926	x_z_	+	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
926	x_z_	-	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
926	x_z_	+	D	+0,000	+0,000	+0,000	+1,3	+0,0	+0,1
926	x_z_	-	D	+0,000	+0,000	+0,000	-1,3	+0,0	+0,0

Nó 410 [+0; +1800; +1815] cm

Pilar	Tipo	HIP	Id	$M_{x,Ed}$ (kN·m)	$M_{y,Ed}$ (kN·m)	$M_{z,Ed}$ (kN·m)	$F_{x,Ed}$ (kN)	$F_{y,Ed}$ (kN)	$F_{z,Ed}$ (kN)
931	x_z_	+	A	+0,000	+0,000	+0,000	+1,9	+0,0	+0,1

Pilar	Tipo	HIP	Id	$M_{x,Ed}$ (kN·m)	$M_{y,Ed}$ (kN·m)	$M_{z,Ed}$ (kN·m)	$F_{x,Ed}$ (kN)	$F_{y,Ed}$ (kN)	$F_{z,Ed}$ (kN)
931	x_z_	-	A	+0,000	+0,000	+0,000	-1,9	+0,0	+0,0
931	x_z_	+	B	+0,000	+0,000	+0,000	+1,9	+0,0	+0,1
931	x_z_	-	B	+0,000	+0,000	+0,000	-1,9	+0,0	+0,0
931	x_z_	+	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
931	x_z_	-	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
931	x_z_	+	D	+0,000	+0,000	+0,000	+1,9	+0,0	+0,1
931	x_z_	-	D	+0,000	+0,000	+0,000	-1,9	+0,0	+0,0

Nó 414 [+0; +1800; +2231] cm

Pilar	Tipo	HIP	Id	$M_{x,Ed}$ (kN·m)	$M_{y,Ed}$ (kN·m)	$M_{z,Ed}$ (kN·m)	$F_{x,Ed}$ (kN)	$F_{y,Ed}$ (kN)	$F_{z,Ed}$ (kN)
941	x_z_	+	A	+0,000	+0,000	+0,000	+2,7	+0,0	+0,9
941	x_z_	-	A	+0,000	+0,000	+0,000	-2,6	+0,0	-0,2
941	x_z_	+	B	+0,000	+0,000	+0,000	+2,6	+0,0	+1,0
941	x_z_	-	B	+0,000	+0,000	+0,000	-2,6	+0,0	-0,2
941	x_z_	+	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
941	x_z_	-	C	+0,000	+0,000	+0,000	+0,0	+0,0	+0,0
941	x_z_	+	D	+0,000	+0,000	+0,000	+2,6	+0,0	+1,0
941	x_z_	-	D	+0,000	+0,000	+0,000	-2,6	+0,0	-0,2