

Design Of Tension Members

2 L BTB

Upper Bracing

D . F. =	1.4	ton
Lx =	3.61	m
∅ used =	16	mm

steel Used	st 37	
Ly =	4.33	m
t plate =	10	mm

Perliminary design

stifness condition

(Lx / ix) & (L/d)

a req. ≥	6.0167	cm
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construction condition

a - ∅

a req. ≥	5.3333	cm
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stresses condition

A req. ≥	0.5882	cm ²
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Use 2 Ls	70*7
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a =	7	cm
t =	0.7	cm
e =	1.97	cm

Ix =	42.4	cm ⁴
Iy =	42.4	cm ⁴
A =	9.4	cm ²

Checks

stifness condition

safe

construction condition

safe

stresses condition

safe

Use 2Ls BTB 70 * 7

Design Of Tension Members		
2 L BTB	TWB (1)	

D . F. =	1.95	ton
Lx =	3	m
∅ used =	16	mm

steel Used	st 37	
Ly =	4.5	m
t plate =	10	mm

Perliminary design

stifness condition	(Lx / ix) & (L/d)
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a req. ≥	5	cm
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construction condition	a - ∅
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a req. ≥	5.3333	cm
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stresses condition

A req. ≥	0.8193	cm ²
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Use 2 Ls	60*6
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a =	6	cm
t =	0.6	cm
e =	1.69	cm

Ix =	22.8	cm ⁴
Iy =	22.8	cm ⁴
A =	6.91	cm ²

Checks

stifness condition	safe
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construction condition	safe
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stresses condition	safe
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Use 2Ls BTB 60 * 6

Design Of Tension Members		
2 L BTB		TWB(2,3)

D . F. =	1.09	ton
Lx =	3.35	m
Ø used =	16	mm

steel Used	st 37	
Ly =	4.02	m
t plate =	10	mm

Perliminary design

4.242641 5.091

stifness condition

(Lx / ix) & (L/d)

a req. ≥	5.5833	cm
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construction condition

a - Ø

a req. ≥	5.3333	cm
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stresses condition

A req. ≥	0.458	cm ²
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Use 2 Ls	60*6
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a =	6	cm
t =	0.6	cm
e =	1.69	cm

lx =	22.8	cm ⁴
ly =	22.8	cm ⁴
A =	6.91	cm ²

Checks

stifness condition

safe

construction condition

safe

stresses condition

safe

Use 2Ls BTB 60 * 6

Design Of Tension Members		
2 L BTB		TWB(4)

D . F. =	0.4	ton
Lx =	6	m
Ø used =	16	mm

steel Used	st 37	
Ly =	6	m
t plate =	10	mm

Perliminary design

4.242641 5.091

stifness condition

(Lx / ix) & (L/d)

a req. ≥	10	cm
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construction condition

a - Ø

a req. ≥	5.3333	cm
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stresses condition

A req. ≥	0.1681	cm ²
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Use 2 Ls	100*10
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a =	10	cm
t =	1	cm
e =	2.82	cm

lx =	177	cm ⁴
ly =	177	cm ⁴
A =	19.2	cm ²

Checks

stifness condition

safe

construction condition

safe

stresses condition

safe

Use 2Ls BTB 100 * 10

Design Of Tension Members		
2 L BTB		TWB(5,6)

D . F. =	2.09	ton
Lx =	4.24	m
Ø used =	16	mm

steel Used	st 37	
Ly =	5.09	m
t plate =	10	mm

Perliminary design

4.242641 5.091

stifness condition

(Lx / ix) & (L/d)

a req. ≥	7.0667	cm
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construction condition

a - Ø

a req. ≥	5.3333	cm
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stresses condition

A req. ≥	0.8782	cm ²
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Use 2 Ls	80*8
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a =	8	cm
t =	0.8	cm
e =	2.26	cm

lx =	72.3	cm ⁴
ly =	72.3	cm ⁴
A =	12.3	cm ²

Checks

stifness condition

safe

construction condition

safe

stresses condition

safe

Use 2Ls BTB 80 * 8