

Catenary Cable Tension

Nonlinear Dynamic Response 3D Test File

Density	8.000	Kg/m3
Young Modulus	1,00E+09	Pa
Length Chain	6.114,84	mm
Initial Spam	6,0	m
Section	a	2,0 mm
	b	32,0 mm
Area	64,0	mm2
Final Spam	3	m
Mass	3.130,80	gram
Volume	391.349,57	mm3
Total Mass From MecWAY	3.130,797	gram
Chain Length from Mecway Mass	6.114,84	mm
Total VOLUME From MecWAY	391.349,567	mm3
Chain Length from Mecway Volume	6.114,84	

NODE 6 HORIZONTAL TENSION THEORETICAL VALUE

W is the weight of the cable per unit length
 y_0 is the height of the lowest point of the cable measured from some reference
 x and y are points that the cable passes through measured from that same reference.
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W	5,018	N/m
Y0	0	m
Y	2,453	m
X	1,500	m

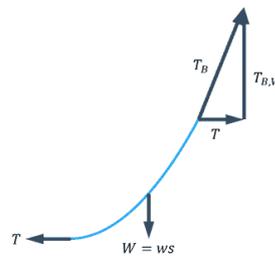
Outputs Objective

T is the horizontal component of tension Result

Equation

$$y = \frac{T}{w} \cosh\left(\frac{w}{T} x\right) + y_0 - \frac{T}{w}$$

$$0 = \frac{T}{w} \cosh\left(\frac{w}{T} x\right) + y_0 - \frac{T}{w} - y$$



T	0,00	
	3,41	N
	0,00	

CALCULIX/MECWAY NODE 6 HORIZONTAL TENSION (Still some small Oscillation due to Nonlinear Dynamic Effects)

Axial Force Mean Value Over the last half Second

3,41	N
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