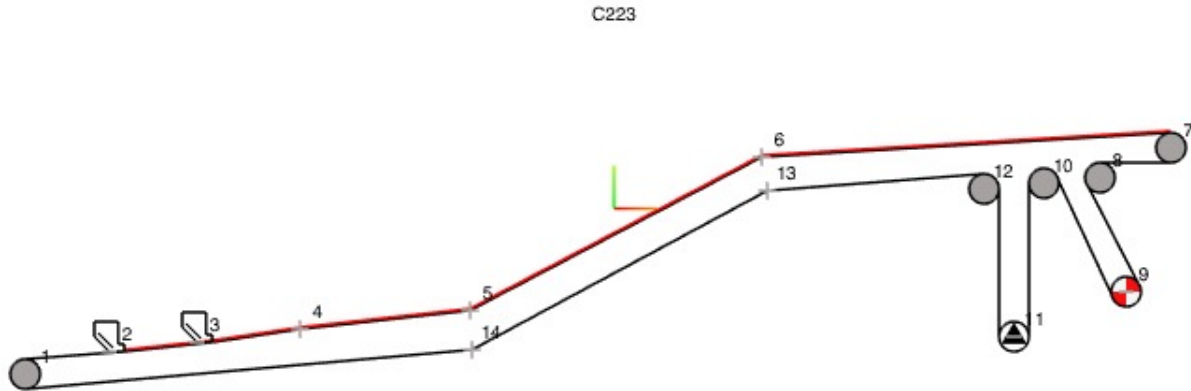


Project	Demo 02 Conveyor High Lift	Client	ABC Iron
Project No.	P9823	Prepared By	Peter Burrow
Conveyor No.	C223	Design Date	01 Oct 2019



**Dynamic Analysis Stopping - Braking - Loaded**

Dynamic Belt Inputs		Dynamic Calculation Inputs	
Belt Modulus	<b>129600</b> kN/m	Calculation Run Time	<b>10</b> seconds
Conveyor Belt Spring Constant K	<b>233280000</b>	Start / Stop Ref Time (Tref)	<b>10.0</b> seconds
Max Conveyor Element length	<b>50</b> m	Time Step Interval dt	<b>0.1</b> seconds
Dynamic Friction f adjustment	<b>1</b>	Viscoelastic Delay Time Tau	<b>0.0013641</b>
Total Moving System Mass	<b>345494</b> kg	Viscoelastic Damping Constant	<b>318212</b> N/m/s
<input type="checkbox"/> Use Runge-Kutta 4th order ODE solver		Runge-Kutta internal step size	<b>0.001</b>

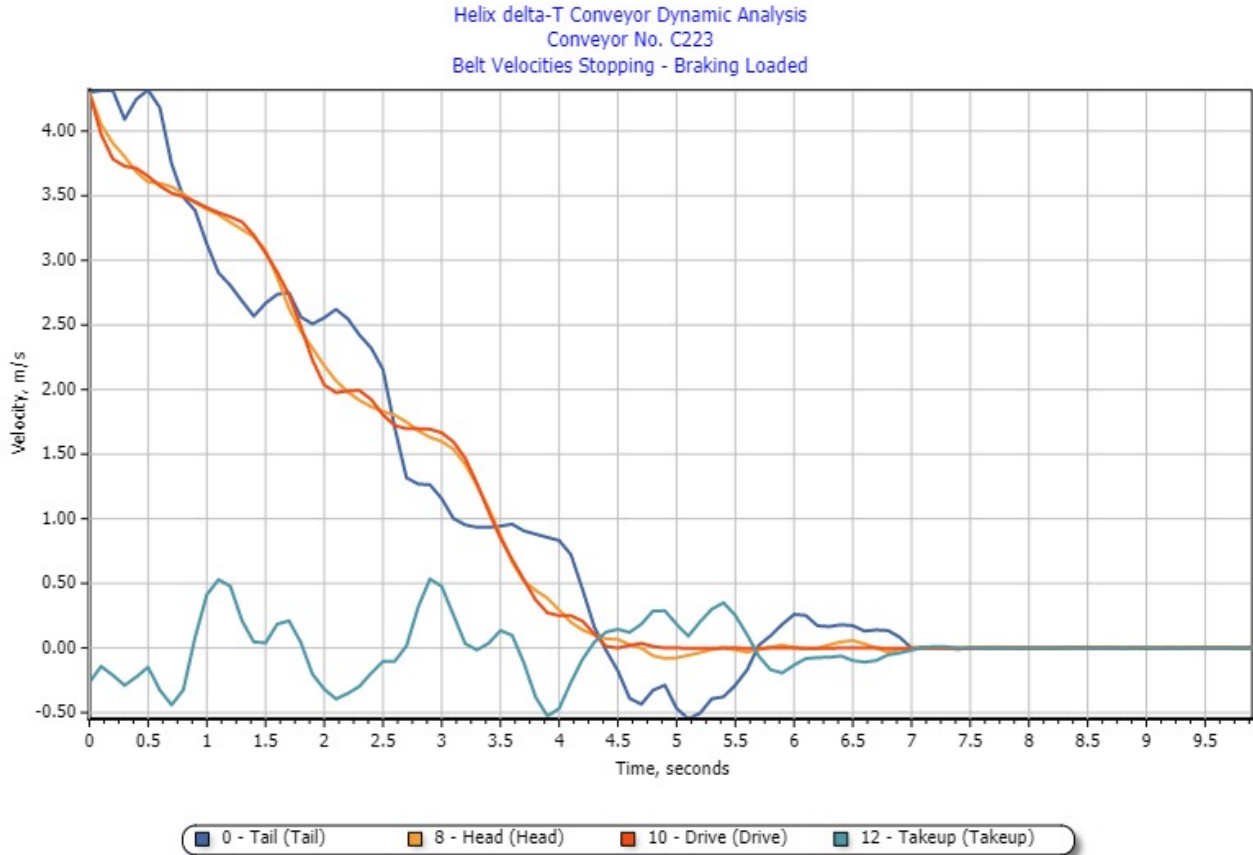
**Takeup Mass & Lockup Capstan Winch (Optional)**

Takeup Mass Static Calculations	<b>26700</b> kg	Average Tension Running Full	<b>222.07</b> kN
Takeup Tension Static Calculations	<b>130.92</b> kN	Average Tension Belt Stationary	<b>125.02</b> kN
Capstan/Winch Appl. Time Delay	<b>0.5</b> seconds	Belt Stretch Tension Available	<b>97.05</b> kN
Additional Tension to add at takeup for Capstan / Winch Locking			<b>0</b> kN
<input type="checkbox"/> Lock-up Takeup Weight Rope with winch during Stopping			

Drive No: 1 Head	Pulley No:9	Drive Inertia	
Starter / Brake Delay Time	<b>0</b> s	Motor Inertia	<b>74.1</b> kg-m <sup>2</sup>
Load Share on Drive Pulley	<b>100</b> %	High Speed Coupling Inertia	<b>0.514</b> kg-m <sup>2</sup>
Number of Motors on Drive Pulley	<b>2</b>	High Speed Brake Disc Inertia	<b>7.32</b> kg-m <sup>2</sup>
Motor Power Rating	<b>630</b> kW	Flywheel Inertia	<b>0</b> kg-m <sup>2</sup>
Low Speed Braking Torque	<b>26.5</b> kN/m	Gearbox Inertia (HSS)	<b>1.8</b> kg-m <sup>2</sup>
Starter Category	<b>C202 800kW x 2 WR</b>	Total Drive Inertia	<b>170.428</b> kg-m <sup>2</sup>
Starter Description	<b>2x800kW Full Load Blocked chute</b>	Total Drive Equivalent Mass	<b>98069</b> kg
Starter Type	<b>Torque-Speed</b>	<input checked="" type="checkbox"/> Holdback is installed on Drive	

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**Dynamic Analysis Velocity Graphs**

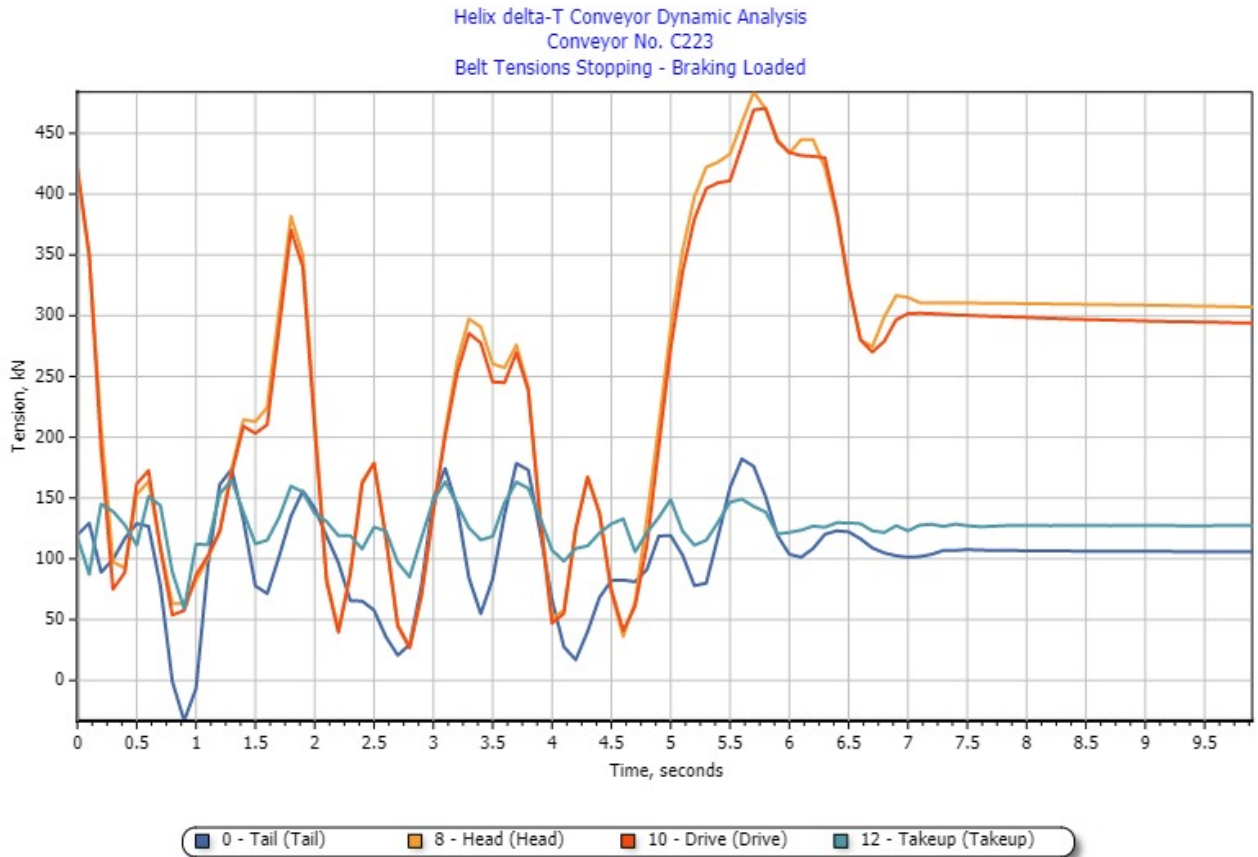


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**Graph Comments Stopping - Braking - Loaded**

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**Dynamic Analysis Belt Tension Graphs**



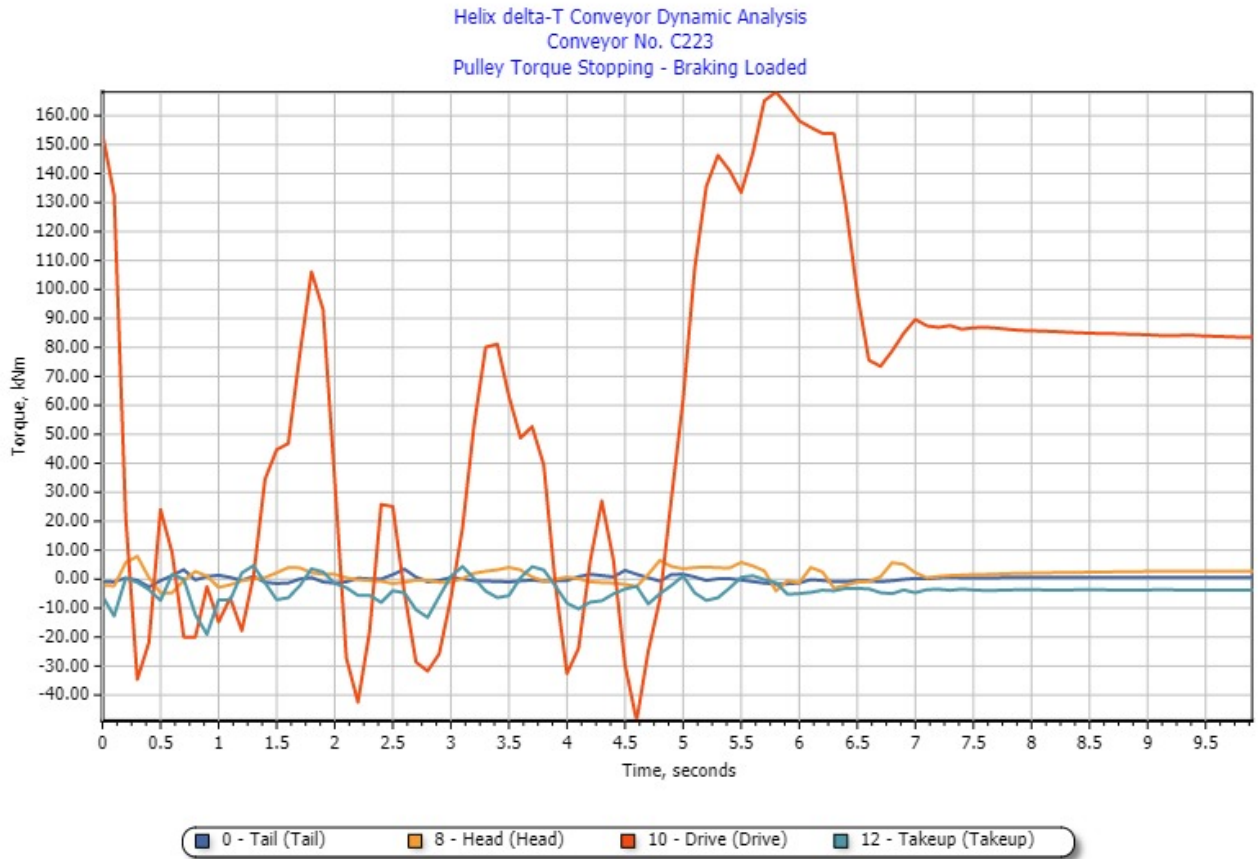
Maximum Tension = 483.97 kN Belt Safety Factor = 6.69

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**Graph Comments Stopping - Braking - Loaded**

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**Dynamic Analysis Pulley Torque Graphs**



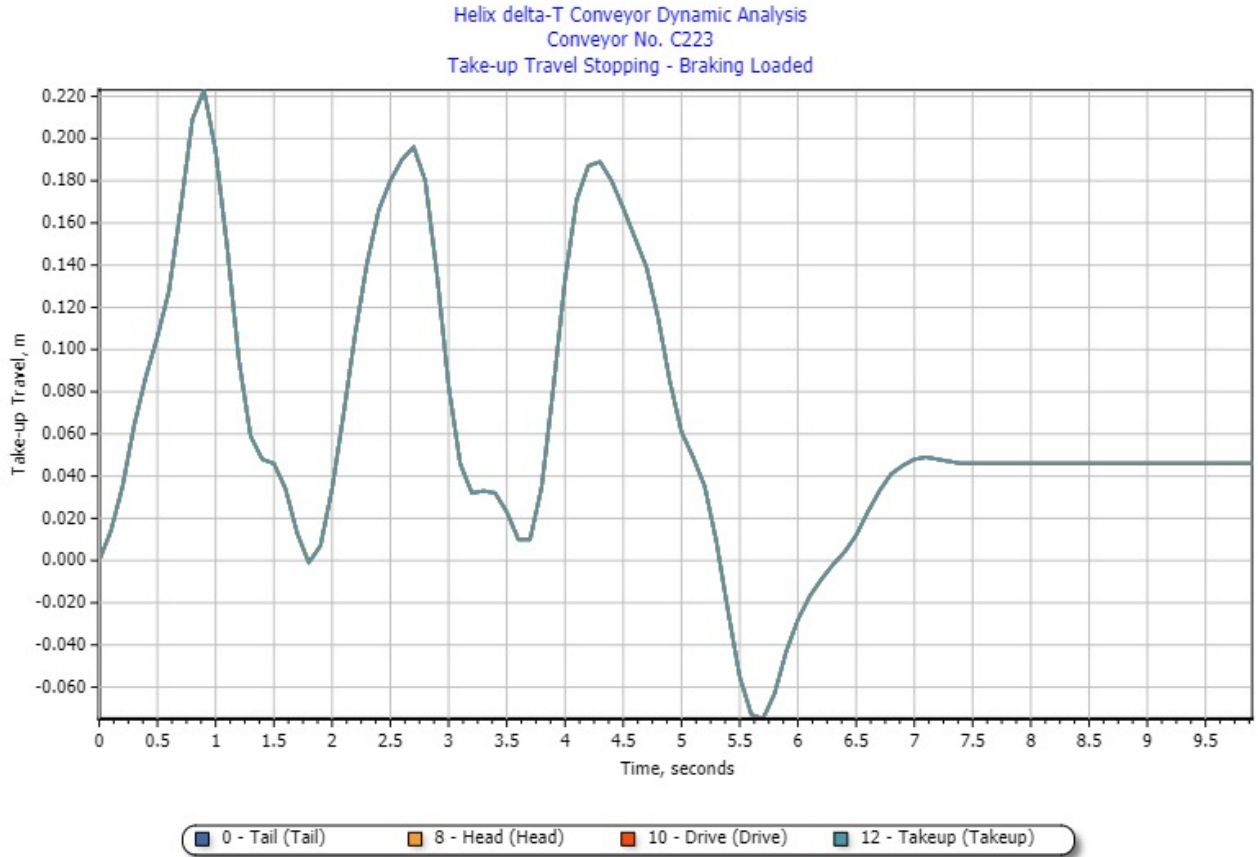
Maximum Torque = 168.16 kNm Minimum Torque = -48.9 kNm

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**Graph Comments Stopping - Braking - Loaded**

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**Dynamic Analysis Take-up Travel Graph**



Maximum Take-up Travel Distance = 0.298 m

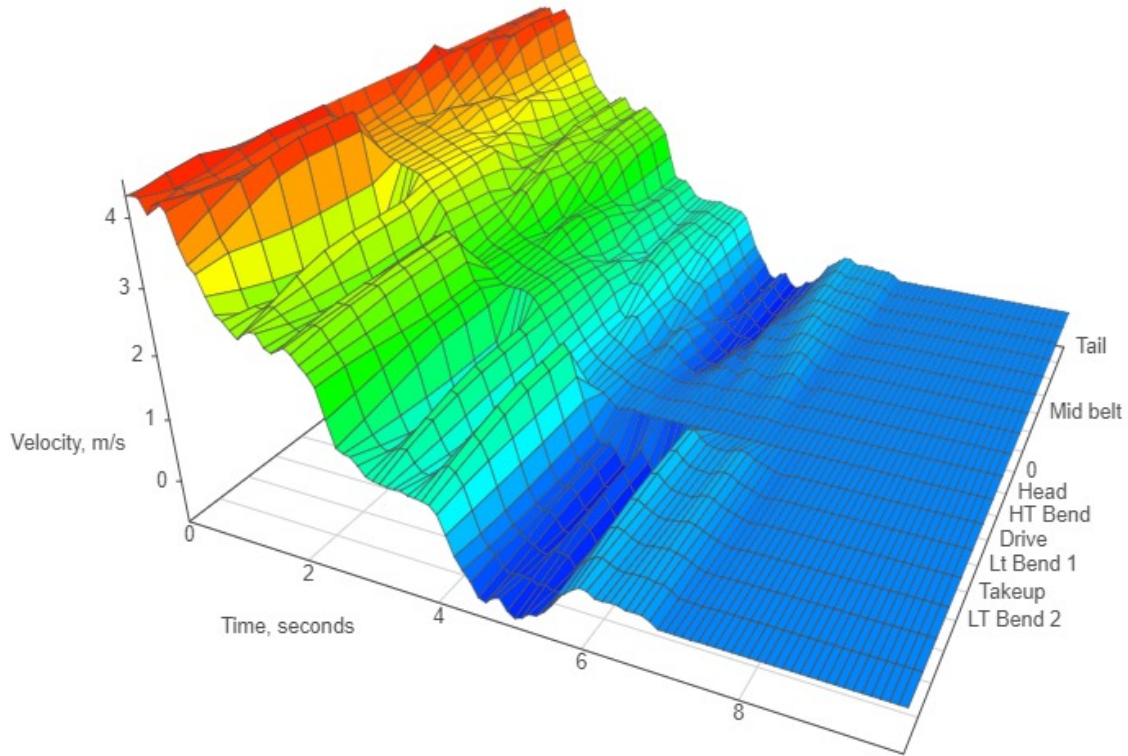
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**Graph Comments Stopping - Braking - Loaded**

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**Dynamic Analysis Velocity Graphs**

Helix delta-T Conveyor Dynamic Analysis Velocity3D  
Conveyor No C223  
Stopping - Braking Loaded



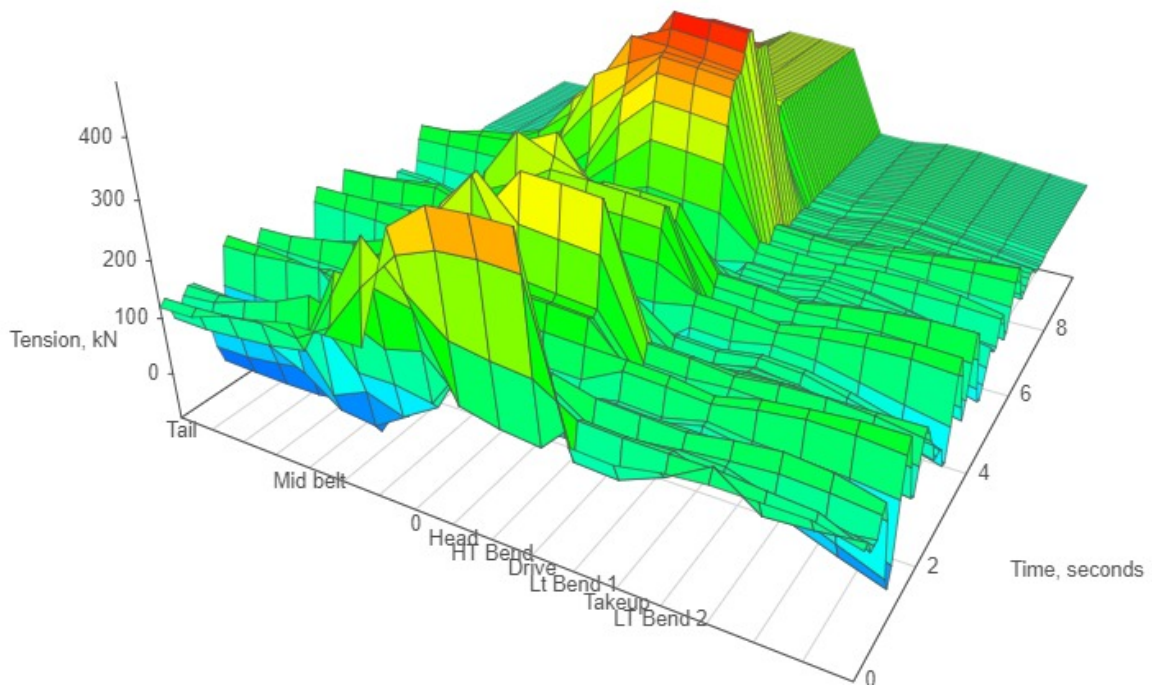
**3D Graph Comments Stopping - Braking - Loaded**



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**Dynamic Analysis Belt Tension Graphs**

Helix delta-T Conveyor Dynamic Analysis Tension3D  
Conveyor No C223  
Stopping - Braking Loaded



**3D Graph Comments Stopping - Braking - Loaded**

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**Dynamic Analysis Belt Tensions Stopping - Braking - Loaded**

**Maximum and Minimum Dynamic Belt Tension Table**

	<b>Max kN</b>	<b>Min kN</b>
0 - Tail (Tail)	182.17	-33.23
1 - Hopper ()	184.10	-35.35
2 - Hopper ()	194.10	-36.26
3 - Int. Pt ()	201.29	-34.89
4 - Int. Pt (Mid belt)	224.47	-82.27
5 - Sect 5/1 (Mid belt)	298.70	-69.41
6 - Sect 5/2 (Mid belt)	363.25	-29.73
7 - Int. Pt (0)	439.10	45.63
8 - Head (Head)	483.97	28.00
9 - Bend (HT Bend)	478.36	28.67
10 - Drive (Drive)	470.51	26.67
11 - Bend (Lt Bend 1)	168.18	62.49
12 - Takeup (Takeup)	164.61	58.93
13 - Bend (LT Bend 2)	153.95	102.59
14 - Int. Pt ()	170.58	70.34
15 - Sect 13/1 ()	178.32	31.11
16 - Sect 13/2 ()	183.82	4.16
17 - Int. Pt ()	183.87	-20.18