HELIX delta-T6 Version Features

HELIX delta-T6 is offered in different versions. The following list shows the main features and functions available in each of the different versions.

Helix Delta-T6 Features				
Version:	**Standard**	**Professional**	**Dynamic Analysis**	**Remarks**
General				
Conveyor Capacity	Up to 1000 tph	Unlimited	Unlimited	
Static Analysis Calculations	✔	✔	✔	Rigid Belt
Dynamic Analysis Calculations			✔	Flexible Belt
Number of Drive Pulleys	One	Unlimited	Unlimited	Each Pulley can have one or two drives
Horizontal Curve Design		✔	✔	Banking angle and Belt Drift
Calculation Method				See Calculation Methods (/DeltaT6/CalcMethods)
CEMA	✔	✔	✔	5th Edition
ISO 5048	✔	✔	✔	Based on DIN 22101
Viscoelastic	✔	✔	✔	Uses Belt Rubber Rheology
Automatic Friction Factor calculation	✔	✔	✔	
Manual Friction Factor override	✔	✔	✔	User can input f for each conveyor section
Temperature Corrector for Friction Factor	✔	✔	✔	
Draw Conveyor Profile				
Sketch Conveyor Profile on screen	✔	✔	✔	
Drag and Drop Pulleys in sketch	✔	✔	✔	
Add any number of Pulleys	✔	✔	✔	
Draw any Pulley Wrap Angle	✔	✔	✔	
Draw any Conveyor Configuration	✔	✔	✔	
Draw Scale Drawing of Conveyor	✔	✔	✔	
Draw 3D Model of Conveyor	✔	✔	✔	
Draw Vertical Curve Dynamically	✔	✔	✔	
Draw Horizontal Curve Dynamically		✔	✔	
Equipment Databases				
Belts	✔	✔	✔	
Idlers	✔	✔	✔	
Pulleys	✔	✔	✔	
Motors	✔	✔	✔	
Gearboxes	✔	✔	✔	
Fluid Couplings	✔	✔	✔	
High and Low Speed Shaft Couplings	✔	✔	✔	
Brakes	✔	✔	✔	
Holdbacks	✔	✔	✔	
VVVF Variable Speed Starters	✔	✔	✔	See Equipment Databases (/DeltaT6/EquipDatabases)
Conveyor Sections / Flights				
Unlimited number of Flights	✔	✔	✔	
Unlimited Length of Conveyor	✔	✔	✔	
Vary Idler Spacing by Section	✔	✔	✔	
Vary Skirt Length	✔	✔	✔	
Input Scrapers & Ploughs	✔	✔	✔	
Manually Override Friction Factor f	✔	✔	✔	
Friction factor adjustment factor f	✔	✔	✔	
Take-up Calculations				
Allow user Takeup Mass Input	✔	✔	✔	
Automatic Takeup Mass Calculation	✔	✔	✔	
Check Belt Sag over all sections	✔	✔	✔	
Vertical Gravity Takeup	✔	✔	✔	
Horizontal Gravity Takeup	✔	✔	✔	
Horizontal Winch Takeup	✔	✔	✔	
Traction Check for Running / Starting / Braking	✔	✔	✔	
Lock Take-up on Stopping			✔	Lock in belt stretch to prevent excessive belt sag
Conveyor Drives				See Dynamic Starting (/DeltaT6/DynamicStarting)
Head, Tail, Tripper, Return Drives	✔	✔	✔	
Multiple / Unlimited Drive Pulleys in any position		✔	✔	Can have two motors on each drive pulley
Starting Torque Factor input	✔	✔	✔	Full and Empty Start Factor
Backstop Torque Calculation	✔	✔	✔	
Add Inertia Flywheels	✔	✔	✔	
Input Speed vs Torque Curves			✔	DOL, Slip Ring WR Motors, Fluid Couplings etc.
Input Time vs Speed Velocity Ramp			✔	DC, VVVF Variable Speed Drives
Brakes and Stopping				
Input Braking Torque on Drive Pulley	✔	✔	✔	
Input Braking Torque on Brake Only Pulley		✔	✔	
High or Low Speed Brake location	✔	✔	✔	
Brake Caliper Selection	✔	✔	✔	
Brake Disc Sizing & Inertia Calc	✔	✔	✔	
Brake Disc Temperature Rise Calculation	✔	✔	✔	
Add Inertia Flywheels	✔	✔	✔	
Calculate Braking / Coasting Distance	✔	✔	✔	
Calculate Discharge Volume Braking / Coasting	✔	✔	✔	
Velocity Ramp Stopping Control			✔	
Belt Tension & Friction Calculations				
ISO 5048	✔	✔	✔	Based on DIN 22101
CEMA	✔	✔	✔	5th edition
Viscoelastic	✔	✔	✔	Uses Belt Rubber Rheology
Temperature Correction Kt	✔	✔	✔	
Fixed Friction Factor Calculation	✔	✔	✔	
User Controlled Friction Factor	✔	✔	✔	
Automatic Friction Factor Calculation	✔	✔	✔	
Reduced Friction on Declines >2.5% slope	✔	✔	✔	Applied to CEMA - for ISO use f=0.012
Suitable for Overland Conveyors		✔	✔	Dynamic analysis recommended for 800kW and up
Suitable for Wide Idler Spacing Friction & Power Calculations	✔	✔	✔	
Flexible Body Dynamic Analysis Tension calculations			✔	See Dynamic Analysis (/DeltaT6/DynamicAnalysis)

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Variable Friction Factor during Starting and Stopping Calculations			✔	Adjusts friction to belt tension and sag during starting / stopping
Tension Summary Report				
Running Full Belt Tensions	✔	✔	✔	See Design Reports (/DeltaT6/DesignReports)
Running Empty Belt Tensions	✔	✔	✔	
Running Levels & Inclines Loaded Belt Tensions	✔	✔	✔	
Running Levels & Declines Loaded Belt Tensions	✔	✔	✔	
Starting Fully Loaded Belt Tensions	✔	✔	✔	
Starting Empty Belt Tensions	✔	✔	✔	
Braking Fully Loaded Belt Tensions	✔	✔	✔	
Braking Empty Belt Tensions	✔	✔	✔	
Coasting Fully Loaded, Empty Belt Tensions	✔	✔	✔	
Bar and Line Graphs of Belt Tensions	✔	✔	✔	
Belt Sag Check	✔	✔	✔	
Take-up Travel / Belt Stretch	✔	✔	✔	
Dynamic Tensions Starting / Stopping			✔	
2D and 3D surface plot of Dynamic Tensions and Belt Velocities			✔	
Vertical Curves				
Concave and Convex Curves	✔	✔	✔	
Belt Lift off Calculation	✔	✔	✔	Running Full/Empty, Starting Full/Empty, Braking full/Empty
Worn Belt Allowance for Lift off	✔	✔	✔	
Edge Tension Rise	✔	✔	✔	
Limit Centre Tension	✔	✔	✔	
Maximum Buckling Radius	✔	✔	✔	
Dynamic Drawing of Vertical Curves on Screen for Geometric Design	✔	✔	✔	
Horizontal Curves				
Draw Curve Dynamically on Plan		✔	✔	
Calculate Curve Motivation Force		✔	✔	
Calculate Banking Balancing Forces		✔	✔	Balancing force for belt, material and friction
Input Banking Angle and view Belt Drift		✔	✔	
Input Centre and Wing Roll Dimensions		✔	✔	
Calculates Belt Drift for Running and Starting Conditions		✔	✔	See Horizontal Curves (/DeltaT6/HorizontalCurves)
View Results Graphically		✔	✔	Easy to see all belt drift conditions on one graph for each curve point
View and Print Horizontal Curve Report		✔	✔	Detailed View of the calculations
Pulley & Shaft Calculations				
Shaft Deflection at Hub	✔	✔	✔	
Shaft Torsion / Strength	✔	✔	✔	
Running Tensions	✔	✔	✔	
Starting Tensions	✔	✔	✔	
Multiple Shaft & Bearing Combinations	✔	✔	✔	
Pulley Inertia's Calculated	✔	✔	✔	See Horizontal Curves (/DeltaT6/HorizontalCurves)
Pulley & Shaft Rationalisation by changing database selection setting	✔	✔	✔	Use Database to rationalise from a sub-set of pulleys and shafts
Shaft Calculations to AS1403 Standard	Separate Program	Separate Program	Separate Program	See Helix delta-D (/DeltaT6/DeltaD)
Conveyor Starting and Stopping - Static Analysis				
System Equivalent Masses	✔	✔	✔	
Drive & Pulley Inertia Calcs	✔	✔	✔	
Belt Tension Rise % - Static	✔	✔	✔	Check belt safety factor starting and stopping
Starting Time Loaded, Empty	✔	✔	✔	
Stopping Time Loaded, Empty for Braking and Coasting	✔	✔	✔	Match stopping times for downstream conveyors
Stopping Distance Full & Empty	✔	✔	✔	
Discharge Volume Braking & Coasting	✔	✔	✔	
Individual Drive Starting Torque factor	✔	✔	✔	
Conveyor Starting and Stopping - Dynamic Analysis				See Dynamic Analysis (/DeltaT6/DynamicAnalysis)
Graph of Belt Velocity vs Time at any pulley or point during Starting / Stopping			✔	
Graph of Belt Tension vs Time at any pulley or point during Starting / Stopping			✔	
Takeup Movement Plotted vs Time			✔	
Graph of Pulley Torque vs Time at any Pulley for Starting and Stopping			✔	
Obtain maximum belt tensions at any pulley or point			✔	Check Belt Safety Factor and Pulley Stresses
Obtain minimum belt tensions at any pulley or point			✔	Design out excessive belt sag by adding flywheels or brakes - essential for long conveyors
View Holdback Torque on pulleys			✔	Correctly size the holdbacks for actual runback belt tensions due to gravity and belt contraction forces
Dynamic Analysis Presentation			✔	PowerPoint Presentation - ppt file (/DownloadFiles/Helixdelta-TConveyorDynamicAnalysisPresentation.ppt)
Additional / Quick Calculations				See Additional Calcs (/DeltaT6/AdditionalCalcs)
Discharge Trajectory	✔	✔	✔	
Hopper Pull-out Force - Basic	✔	✔	✔	
Hopper Pull-out Force - Bruff's Method	✔	✔	✔	Belt Feeder Design
Hopper Pull-out Force - Theoretical Method (TUNRA)	✔	✔	✔	Belt Feeder Design
Belt Turnover Calculator	✔	✔	✔	See Belt Turnovers (/DeltaT6/BeltTurnovers)
Pulley Inertia	✔	✔	✔	
Pulley Wrap Angle Calculation	✔	✔	✔	
Drive Traction Calculation	✔	✔	✔	
Pulley Bearing L10h life	✔	✔	✔	
Vertical Curve Lift-off radius	✔	✔	✔	
Vertical Curve Buckling Radius	✔	✔	✔	
Vertical Curve Edge Tension Radius	✔	✔	✔	
Horizontal Curve Banking Angle and Belt Drift		✔	✔	
Equipment Schedules from Multiple Design Files				Extract lists from multiple conveyor design files
Design Summary	✔	✔	✔	
Pulley & Shaft Lists	✔	✔	✔	
Idlers	✔	✔	✔	

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Version:	**Standard**	**Professional**	**Dynamic Analysis**	**Remarks**
Motors	✔	✔	✔	
Gearboxes and Fluid Couplings	✔	✔	✔	See Belt Turnovers (/DeltaT6/BeltTurnovers)
Brakes and Holdbacks	✔	✔	✔	
Belt Tension Comparison Report	✔	✔	✔	For example compare existing conveyor belt tensions with proposed upgraded conveyor
Printing and Exporting Reports				View reports on screen or export to file formats
Number of Reports	70+	70+	80+	
Print Multiple Reports in one file	✔	✔	✔	
PDF Files	✔	✔	✔	
MS Word RTF files	✔	✔	✔	
CSV and Excel files	✔	✔	✔	
Drawing of Conveyor	✔	✔	✔	
3d model	✔	✔	✔	
Tension Graphs - Bar Graphs	✔	✔	✔	
Tension Graphs - Line Graphs	✔	✔	✔	
Dynamic Analysis Graphs 2D and 3D			✔	See Dynamic Analysis (/DeltaT6/DynamicAnalysis)
Help Files				See Documentation (/DeltaT6/Documentation)
Electronic Help File	✔	✔	✔	Includes Contents, Index and Find
Context Sensitive	✔	✔	✔	Press F1 anywhere in the program for Help
Windows Format CHM format	✔	✔	✔	Based on HTML
Print your own Hardcopy manual	✔	✔	✔	Print the Help file by chapter or individual Help topic
Computer Operating System Compatability				See System Requirements (/DeltaT6/SystemRequirements)
Windows XP ®	✔	✔	✔	Requires Service Pack 3 or later
Windows Vista ®	✔	✔	✔	
Windows 7 ®	✔	✔	✔	
Windows 8 and 8.1 ®	✔	✔	✔	
Windows 10 ®	✔	✔	✔	
Version:	**Standard**	**Professional**	**Dynamic Analysis**	**Remarks**

Pulley Shaft Design...