

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					
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		✓	✓	✓	
Import Conveyor Sections / Flights					
Import XYZ from CAD DXF file		✓	✓	✓	
Import XYZ from CSV (Excel®) text (.txt) file		✓	✓	✓	
Auto Add Return Belt XYZ Points		✓	✓	✓	
Import XYZ from Beltstat™ BCK file		✓	✓	✓	
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 See Dynamic Starting (/DeltaT6/DynamicStarting)
Conveyor Drives					
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		✓	✓	✓	

Helix Delta-T6 Features					
	Version:	Standard	Professional	Dynamic Analysis	Remarks
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)
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	Separate Program	See Helix delta-D (/DeltaT6/DeltaD)
Pipe Conveyors					
Pipe Conveyor calculation using Visco Method		✓	✓	✓	See Pipe Conveyors (/DeltaT6/PipeConveyors)
Resistance and losses include: Belt to Idler Indentation Resistance, Material and Belt Flexure losses, Idler Rotation (Rim Drag) Resistances, Belt to Idler scuffing losses		✓	✓	✓	Uses Belt Rubber Rheology
Calculate Horizontal and Vertical Curves		✓	✓	✓	Generate individual reports on each Curve
Pipe Conveyor Idlers added to Idler Database as a guideline		✓	✓	✓	
Pipe Cross Section		✓	✓	✓	Easy to see Pipe Conveyor Cross Sectional image that includes relavent belt and material properties
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					
Graph of Belt Velocity vs Time at any pulley or point during Starting / Stopping				✓	See Dynamic Analysis (/DeltaT6/DynamicAnalysis)
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					
Discharge Trajectory		✓	✓	✓	See Additional Calcs (/DeltaT6/AdditionalCalcs)
Hopper Pull-out Force - Basic		✓	✓	✓	
Hopper Pull-out Force - Bruff's Method		✓	✓	✓	Belt Feeder Design
Version:	Standard	Professional	Dynamic Analysis	Remarks	

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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		✓	✓	✓	
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 ☺		✓	✓	✓	
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Pulley Shaft Design...