

Conveyor Engineering & Analysis

Description

[ExConTec Los Filos](#)

[ExConTec Essroc](#)

[ExConTec Oak Grove](#)

[ExConTec TECO](#)

Dos Santos Engineering offers comprehensive conveyor engineering services, from new system design and layout to performance analysis, troubleshooting, and upgrade engineering. At the core of DSE's conveyor analysis capability is the proprietary DSI ExConTec (Expanded Conveyor Technology) platform - a power and tension analysis tool that goes significantly beyond standard industry methods.

DSE's conveyor engineering services are available to plant operators, terminal operators, mining companies, engineering contractors, and equipment suppliers who need rigorous, independent engineering analysis of their conveyor systems.

CONVEYOR ENGINEERING SERVICES OFFERED

- New conveyor system design and layout engineering
- Power and tension analysis for simple and complex conveyors (horizontal curves, vertical curves, multiple loading points, regenerative systems)
- High-angle and steep-angle conveyor analysis
- Conveyor structural engineering - galleries, frames, transfer towers, conveyor supports
- Overland conveyor engineering
- Feeder engineering and analysis
- Upgrade and capacity increase engineering
- Troubleshooting and root-cause analysis for operational problems
- Slack belt and take-up system analysis
- Conveyor maintenance program development

POWER AND TENSION ANALYSIS SOFTWARE

Material	coal		Belt width	914	mm
-Density	.88	t/m ³	Belt speed	3.05	m/s
Conveying rate	771	t/h	Tension rating	175	kN/m
CEMA area -20 deg surcharge	0.091	sq. m	Ambient temperature	-17.8	deg C
%CEMA load	87.5	%	Temperature factor	1.35	

Tensions Summary					
	Running (kg)	Empty (kg)	Accel (kg)	Braking (kg)	Drifting (kg)
T1	14105.3	9078.2	19028.7	1981.9	5201.1
T2	3723.2	3573.1	2940.2	10143.6	3861.1
Tmax	14105.3	9078.2	19028.7	10436.9	5201.1
kN/m	151.3	97.4	204.2	112.0	55.8
Accel/Decel Time (secs)	N/A	N/A	19.5	6.9	10.6
Shaft KW	314.5	167.8	509.1	-244.2	0.0
7.0 % losses	22.0	11.7	35.6	17.1	0.0
Motor (+) / Brake (-) kW	336.5	179.5	544.7	-227.1	0.0
Selected motor kW	391.6	391.6	391.6	391.6	391.6
Node 1, T-U tens (kg)	3856	3856	3856	3856	3856
Conveyor stretch (m)	9.2	8.4	12.0	7.1	4.5
Take-up stretch (m)	4.6	4.2	6.0	3.5	2.3

SPECIAL FEATURES OF ExConTec

COMPLETE TENSION AND POWER ANALYSIS Each run produces a complete tension and power analysis under steady state, starting and stopping conditions. Stopping is by braking and by drifting. Starting and stopping analyses utilizes rigid body dynamics. Complex conveyors are easily analyzed, including horizontal, vertical and compound curves, as well as multiple loading points and two-way conveyors.

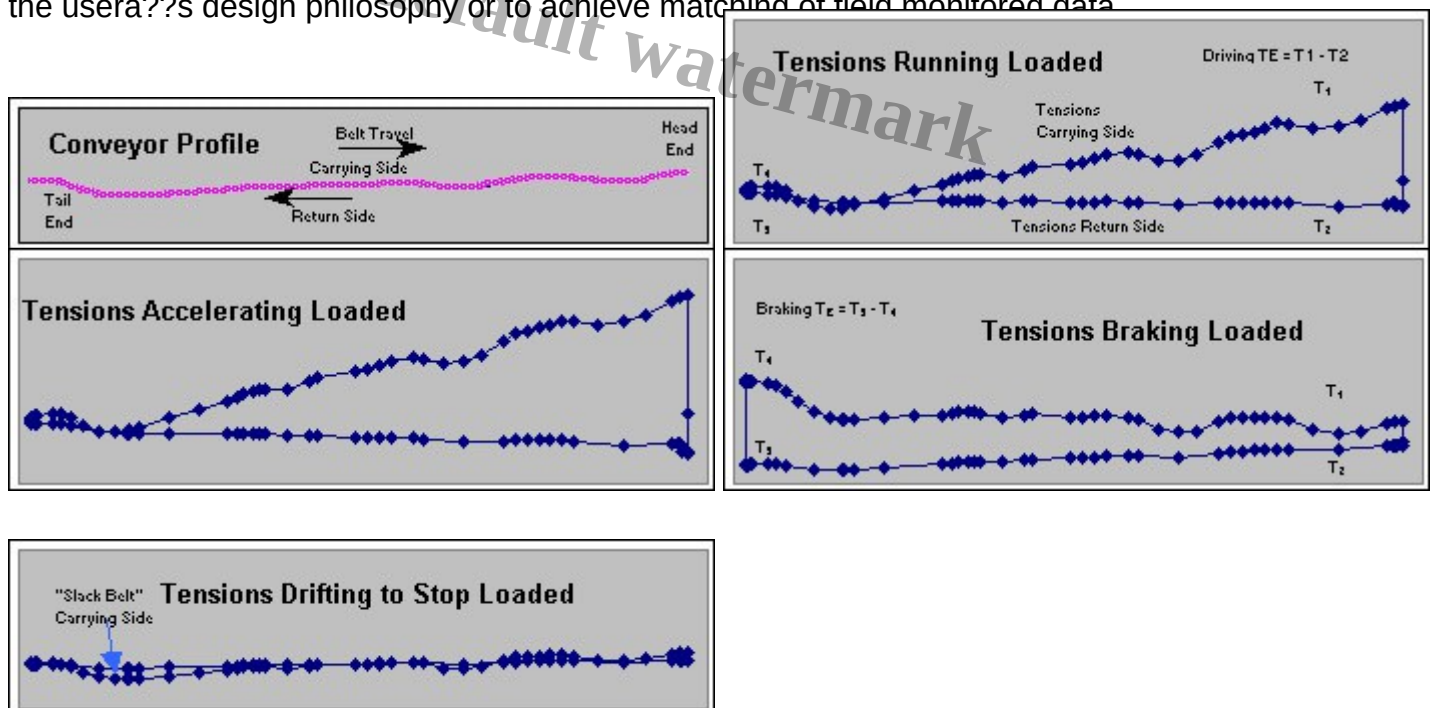
GRAPHICAL DISPLAY OF CHANGING LOAD CONDITIONS Sequential runs, using macros, allow real time analysis and graphical display of changing load conditions including load-on, trailing-off and any discontinuity of material flow. This feature allows us to quickly spot the aggravations of flow discontinuities.

ACCOUNTS FOR ALL BELT LINE RESISTANCES Virtual material loads, or "load equivalents" are used to account for belt line resistances associated with the curving profile or plan of the conveyor line. These (previously unaccounted for) resistances become significant at horizontal curves where the effect is always increased resistance.

UTILIZES YEARS OF REAL WORLD EXPERIENCE CEMA "Ky", "flex" and "shear" resistance factors are supplemented with additional influences that reflect our experience and philosophy.

AIDS IN THE RESOLUTION OF SLACK BELT ISSUES In the analysis, belt tension becomes negative (compressive) when it drops below zero. This, though not realistic (as belt becomes slack), allows continued analysis indicating the tension increase required to correct the slack belt problem.

EASILY ADAPTABLE BY QUALIFIED ENGINEER An input section entitled "Discretion by Responsible Engineer" offers the user an opportunity to affect the analysis by use of adjustment factors on the "Ky" and "Kx" values and on the terminal resistances. These factors can be used to alter the results according to known characteristics of the conveyors being analyzed, to reflect the user's design philosophy or to achieve matching of field monitored data



Visit More

[Industries Served](#)

[References & Resources](#)

Get in Touch

We're here to answer your questions and support your project needs.

[Contact Us](#)

Follow Us :

Facebook

X-twitter

Instagram

Linkedin

Date Created

November 13, 2025

Author

marcdossantos

default watermark