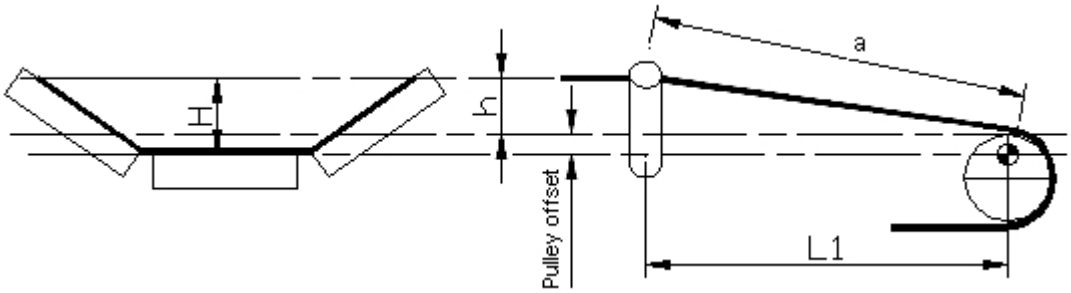
Trough Transition Calculation

Helix Technologies Pty Ltd

Project	ABC Iron Ore Mine	Client	ABC Mining Ltd
Project No.	PO 56414	Prepared By	P. Burrow
Conveyor No.	CV202 5500tph ST4500 3m/s ISO	Design Date	26 September 2011



Applies to 3 equal roll idlers

Refer to ISO 5293:2004 Standard

Input Data

Description		CV202 Tail end	
Idler Trough Angle	lambda	***35***	deg
Belt Width	b	***1800***	mm
Belt Modulus	M	***288000***	kN/m
Transition Depth h (h = H - offset)	h	***244***	mm
Belt Rated Operating Tension	Tr	***600***	kN/m
Belt Tension at Pulley (running)	T1	***317***	kN
Belt Tension at Pulley (starting)	T1s	***332***	kN
Allowable Edge Tension Rise running %	Fr	***15***	% (default = 15% i.e f=1.15)
Allowable Edge Tension Rise starting %	Fs	***67***	% (default = 67% i.e f=1.67)

Calculation Results

$$L_1 = \frac{h}{Sin\lambda}\sqrt{\frac{M}{\Delta T}\left(1 - Cos\lambda\right)}$$

Minimum Transition Distance for Edge Tension, running	L1e	3497	mm
Minimum Transition Distance for Edge Tension, starting	L1s	2772	mm
Minimum Transition Distance for Centre Tension > 0	L1c	4224	mm
Required Transition Distance	L1	**4224**	mm