

LAGGING SELECTION – ONE OF THE 4 PILLARS OF LAGGING PERFORMANCE

Lagging Selection

One of the 4 Pillars of Lagging Performance

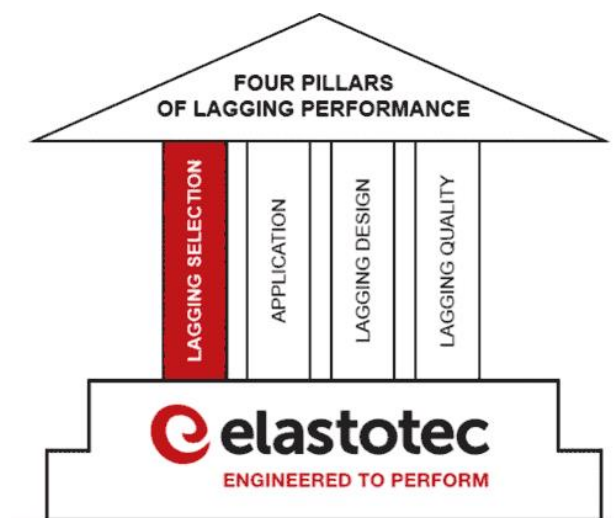
Lagging can be of good quality and application can be correct, but pulley lagging can still fail and does. Everything seems right but the lagging still doesn't perform to expectations.

SO WHY DOES THIS HAPPEN?

It's because the pulley lagging selection is not right for the application.

What contributes to poor lagging performance?

- Lack of understanding of pulley application requirements.
- Failure to understand conveyor system requirements I.E. Spare pulleys that can be used in multiple conveyor locations.
- Lack of understanding of lagging engineering and lagging types available.
- Failure to understand lagging application methods.
- Resistance from mine company staff to change lagging from existing specification/drawing requirements.



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Imagine the consequences of making the wrong lagging selection that results in the lagging not lasting as long as the bearings and locking elements.



Understanding the pulley operation takes time and specialist experience. It's important to dig deeper to fully understand the application requirements.

At Elastotec we do take the time with our customers to ensure the right lagging selection. We achieve this by factoring in the conveyor system, past lagging performances, pulley operating conditions and the various locations in the conveyor that spare pulleys may have to operate in.

The best outcome is when your experience in the field and the understanding of the everyday conveyor operation is combined with our lagging engineering expertise.

Dig Deeper



**Your conveyor
operation/
maintenance
expertise**

+

**Elastotec
Lagging
expertise**

=

**Better lagging
performance**

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The team at Elastotec would like to work with you to ensure you have the correct pulley lagging selection. We have developed a number of tools to assist in evaluating individual pulley requirements, and to help narrow the choice of the best lagging for each application.

THESE INCLUDE:

1. LAGGING OPERATION CHECKLIST

To check what conditions is the lagging operating at? Temperature, tension, belt cover condition, presence of carryback, wrap angle, type of belt, type of belt splices, build-up on the pulleys.

It also is important to understand what type of lagging has been used before and how did each lagging type perform.

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LAGGING OPERATION CHECKLIST

COMPANY:	DATE:	JOB #:
CONTACT:	EMAIL:	PHONE:
PROJECT NAME:	LOCATION:	

TEMPERATURES	CHECK
NORMAL OPERATING TEMP (°C)	
MINIMUM OPERATING TEMP (°C)	
MAXIMUM OPERATING TEMP (°C)	

REQUIRED INPUT DATA FOR LAGGING ANALYST EVALUATION	CHECK
PULLEY	
CONVEYOR LAYOUT DIAGRAM	
PULLEY DIAMETER	
WRAP ANGLE	
BELT TYPE (STEEL/FABRIC)	
BELT RATING	
LAGGING IN CONTACT WITH: ☐ BOTTOM COVER ☐ TOP COVER (CARRY SIDE)	
BOTTOM COVER THICKNESS	
BOTTOM COVER HARDNESS	
BELT WIDTH (mm)	
BELT T1 - RUNNING	
BELT T2 - RUNNING	
BELT T1 - STARTING	
BELT T2 - STARTING	
BELT MODULUS	
BELT CONDITION: ☐ NEW ☐ USED	
AGE	
AMOUNT OF WEAR	
EXPOSED REINFORCING	
PRESSENCE OF CARRY BACK: ☐ YES ☐ NO	
SIZE	
LUMPS	
FINES	
CLUMPY: ☐ YES ☐ NO	
IS BUILDUP A PROBLEM ON THE PULLEY: ☐ YES ☐ NO	
ANY CHEMICALS PRESENT (e.g. ADD): ☐ YES ☐ NO	
TYPE	
CONCENTRATION	

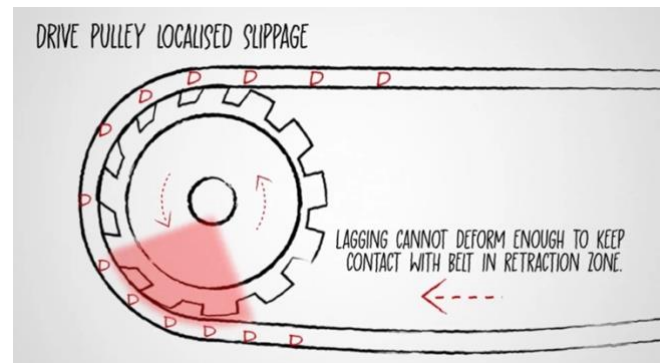
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2. LAGGING ANALYST.

To calculate T1/T2 ratio and risk of localised slippage with belt retraction.

Lagging AnalystTM

OVERLAND
CONVEYOR COMPANY, INC



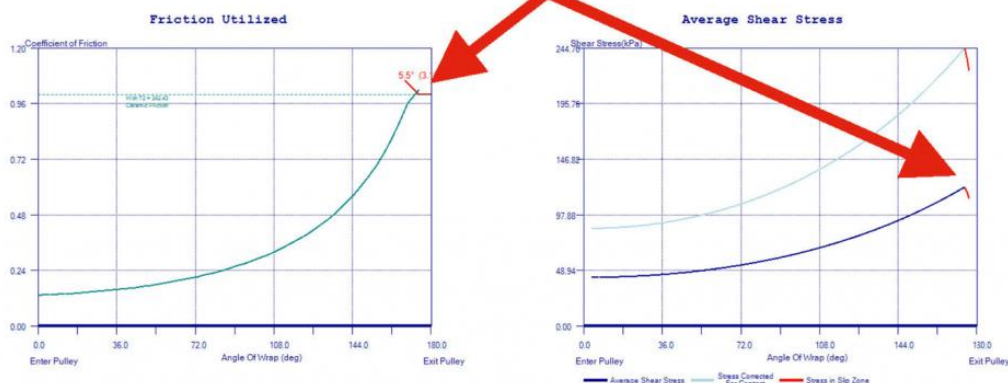
Resultant Friction and Shear Stress

Belt Tension(Kn) To Prevent Local Slip = 144.78961082641 Kn

Belt Tension(Kn) To Prevent Full Slip Per CEMA (Euler) = 63.622912554536 Kn

Maximum Shear Stress(kPa) = 244.6226

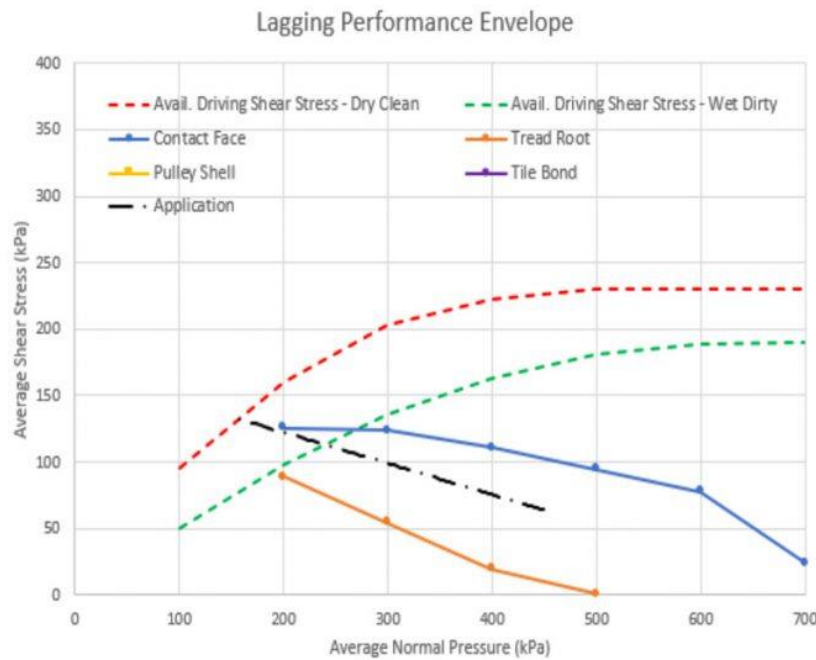
5.5 DEGREES OF SLIP BETWEEN BELT COVER & LAGGING



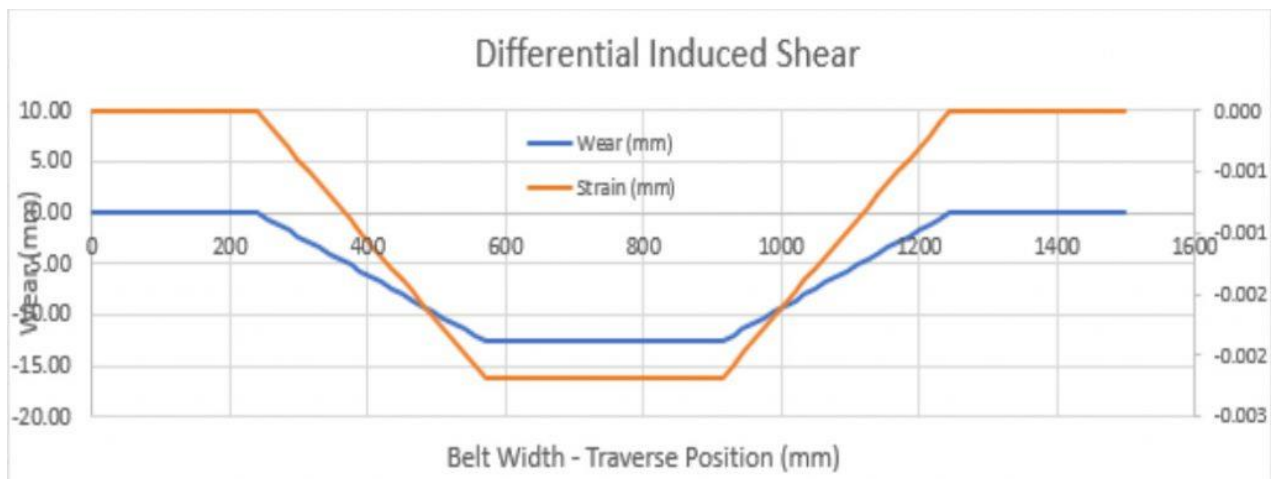
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3. LAGGING PERFORMANCE ENVELOPES.

Lagging Performance Envelopes calculate if the shear and normal stresses that the conveyor performance will impart on the lagging, are higher than what the lagging is designed to operate with. This tool helps reduce the risk of catastrophic lagging failure by identifying when lagging operational limits are being reached.



Elastotec Pulley Lagging Analysis	
Cadia CV3035	
Inputs	
Tension T1	675 kN
Tension T2	230 kN
Belt Carcass	
ST Rating	ST 5600
Belt Elasticity Eb	403,200 kN/m
Width BW	1.500 m
Pulley Details	
Pulley Diameter D	2,000 mm
Wrap Angle a	180 deg.
Belt Cover Details	
Overall Thickness tbc	9.0 mm
Durometer (Shore A)	65
Elastic Modulus Ebc	4.4 MPa
Poissons ubc	0.45
Shear Modulus Gbc	1.528 MPa
Lagging Details	
Lagging Product	Elastotec Diamond Rubber Selection
Overall Thickness tl	25 mm
Durometer (Shore A)	65 Duro
Shear Modulus GI	0.913 MPa
Differential Induced Shear	
Differential Depth Dd	13 mm
Differential Width - Centre Dw	333 mm
Differential Width - Extent De	1000 mm
Conditions	
Conditions	Dry Clean Selection
UPDATE CALC	



At Elastotec we believe lagging solutions should cover each and every one of the Four Pillars of Lagging Performance.

Selecting the correct lagging for the application is one of the most important.

For additional information please contact one of our representatives at:

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