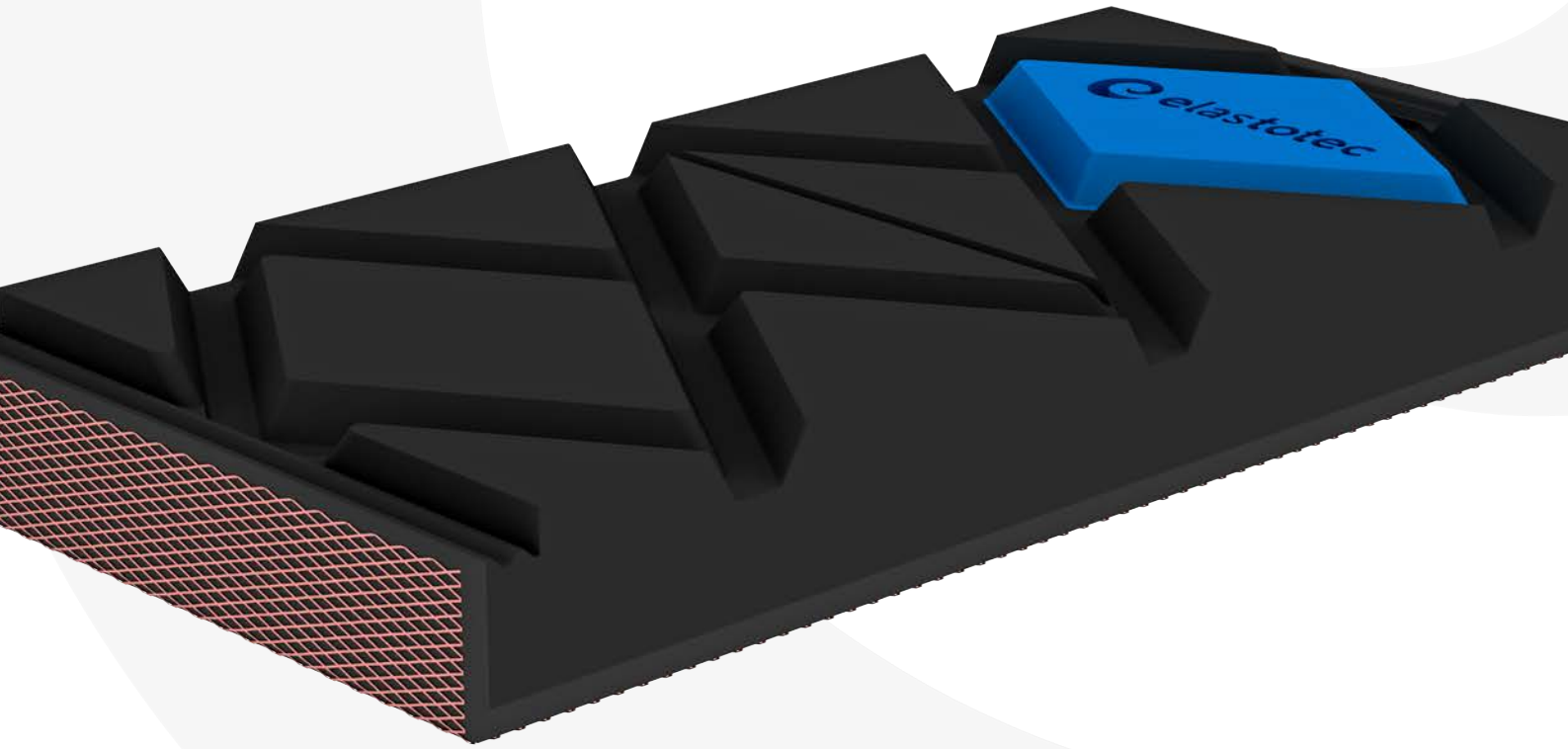
EXTREME RUBBER LAGGING

elastotec

ENGINEERED TO PERFORM



Phone: +61 2 8987 1922 | www.elastotec.com.au

EXTREME RUBBER LAGGING

DESCRIPTION

Elastotec Extreme Rubber Lagging has been developed to provide mining companies with a long life lagging that will perform reliably on both Drive and Non Drive pulleys, including those in contact with the dirty side of the conveyor belt such as High Tension Bend (HTB) pulleys. HTB pulleys are arguably the most demanding application for lagging due to the combination of high belt tensions, presence of carry back, uneven belt profile that changes with service life, and the need to protect the conveyor belt. These conditions combine to create extremely high localised shear forces that can damage both the lagging and the conveyor belt.

Elastotec Extreme Rubber Lagging is ideal for:

- Drive and Non Drive pulleys with a requirement to extend service life
- Non drive pulleys in contact with dirty side of the belt
- Non drive pulleys in contact with an uneven belt top cover surface due to wear
- High Tension Head pulleys
- High Tension Snub pulleys
- High Tension Bend pulleys

EXTREME RUBBER LAGGING

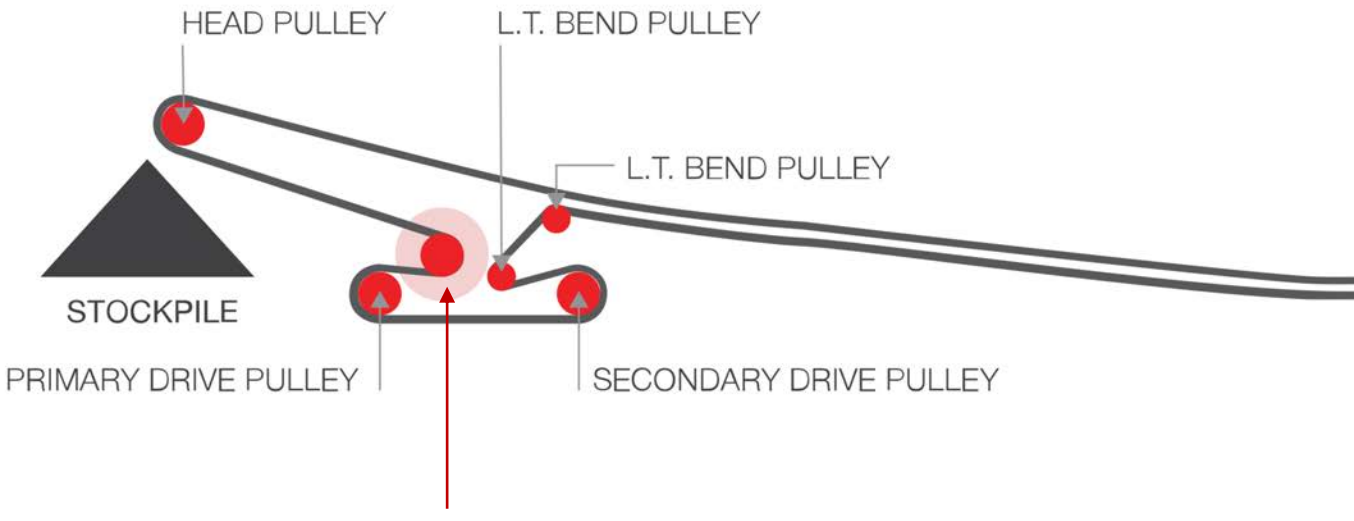
APPLICATION

ELASTOTEC EXTREME RUBBER LAGGING IS DESIGNED FOR THE FOLLOWING CONDITIONS:

- ✓ Highly abrasive conditions
- ✓ Uneven belt top cover profile due to wear.
- ✓ Presence of carry back that can cause build up and resultant belt damage
- ✓ High power, high tension conveyor belts (Up to 3,000 kN belt tensions).
- ✓ Extreme temperatures from -40°C to +60°C.
- ✓ Extended outdoor operational service.
- ✓ To protect the belt from high localised shear forces that result from belt top cover wear.

ELASTOTEC EXTREME RUBBER LAGGING IS DESIGNED FOR USE INTHE FOLLOWING DEMANDING APPLICATIONS:

- Drive and Non Drive pulleys with a requirement to extend service life.
- High power drive pulleys.
- Large non drive pulleys on high power belt conveyors that are in contact with the dirty side of the belt. This includes gearless drive conveyors with power ratings of up to 6MW.
- Pulleys where high levels of carry back are present.
- Pulleys in locations that are difficult to access and where pulley change out is difficult.
- Critical locations where unplanned conveyor downtime due to lagging failure must be eliminated.
- Conveyors that operate across a wide temperature range.
- Pulleys subjected to high localised shear forces due to uneven belt profile caused by wear of the belt top cover.



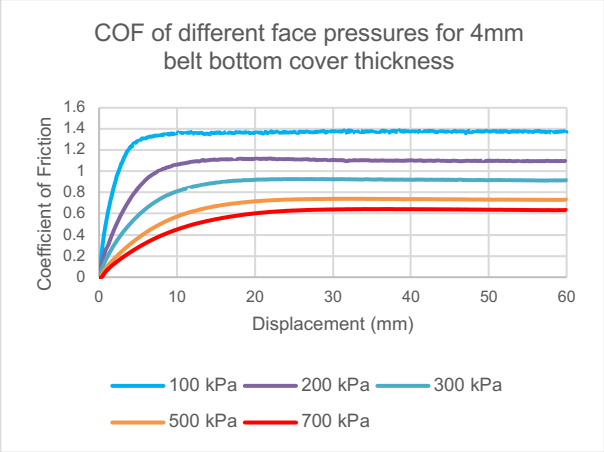
HIGH TENSION BEND PULLEY

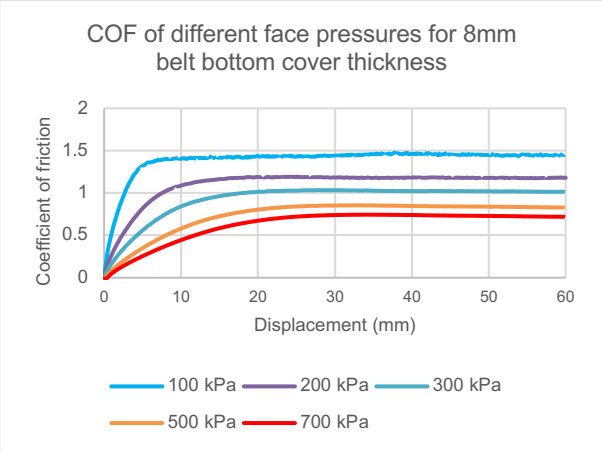
EXTREME RUBBER LAGGING

LAGGING REQUIREMENTS FOR HIGH POWER DRIVE PULLEYS

- Soft (60 Shore A), flexible to move with the belt as it retracts around the arc of contact and minimize the risk of localized slippage and the resulting wear of the bottom belt cover.
- Abrasion resistant - to resist wear and provide long service life.
- Strong bond to steel - to prevent debonding from the pulley shell under high cyclic shear loads.
- Friction factor as detailed in the graphs below that can transfer the required power under a range of conditions.

FRICTION - NATURAL RUBBER LAGGING (76511) – STANDARD

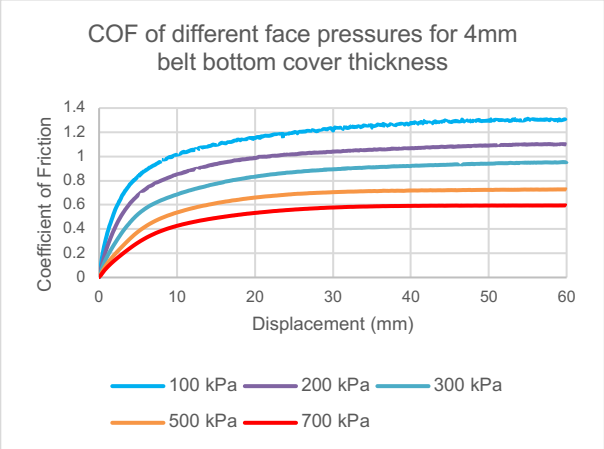


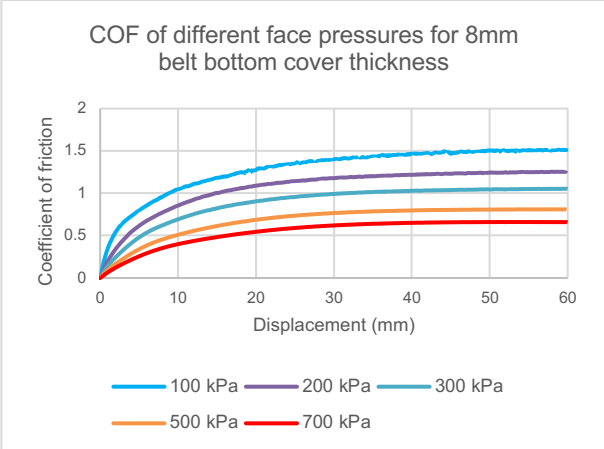


	Coefficients of Friction					
MAX	Face pressure	100	200	300	500	700
	4mm belt	1.395442	1.122275	0.929257	0.74172	0.643886
	8mm belt	1.480416	1.193263	1.036824	0.855489	0.744823

Displacement	Coefficients of Friction					
6.35	Face pressure	100	200	300	500	700
	4mm belt	1.319636	0.94174	0.665058	0.43669	0.335254
	8mm belt	1.376606	0.923549	0.653326	0.419799	0.309954
40-50	Face pressure	100	200	300	500	700
	4mm belt	1.377096	1.09939	0.919315	0.735265	0.640097
	8mm belt	1.455827	1.181277	1.021963	0.842249	0.734162

FRICTION - EXTREME RUBBER LAGGING (86010)





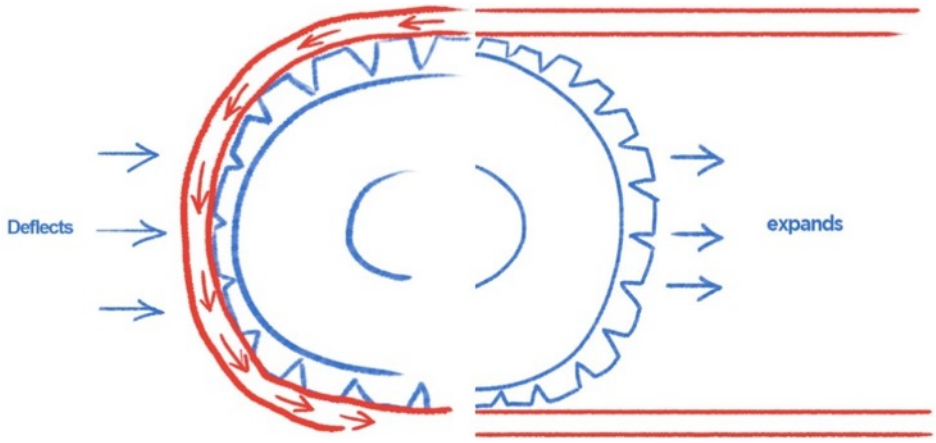
	Coefficients of Friction					
MAX	Face pressure	100	200	300	500	700
	4mm belt	1.313521	1.106197	0.954269	0.728765	0.595628
	8mm belt	1.524833	1.258073	1.055614	0.811481	0.661652

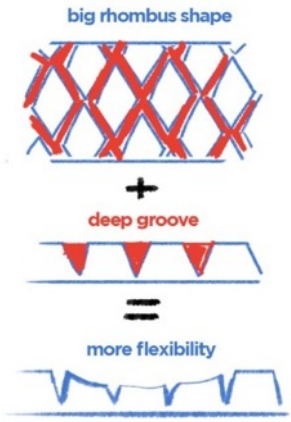
Displacement	Coefficients of Friction					
6.35	Face pressure	100	200	300	500	700
	4mm belt	0.900562	0.747318	0.586157	0.436955	0.337786
	8mm belt	0.879598	0.693739	0.552903	0.398705	0.304103
40-50	Face pressure	100	200	300	500	700
	4mm belt	1.28747	1.080616	0.932579	0.721487	0.593336
	8mm belt	1.482977	1.232064	1.038392	0.803876	0.657068

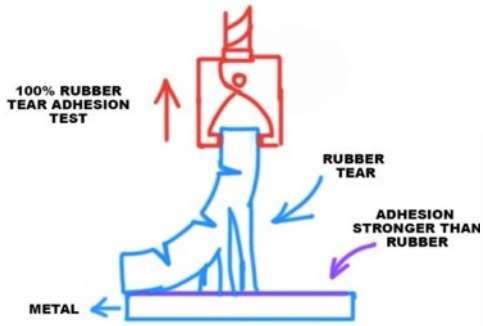
EXTREME RUBBER LAGGING

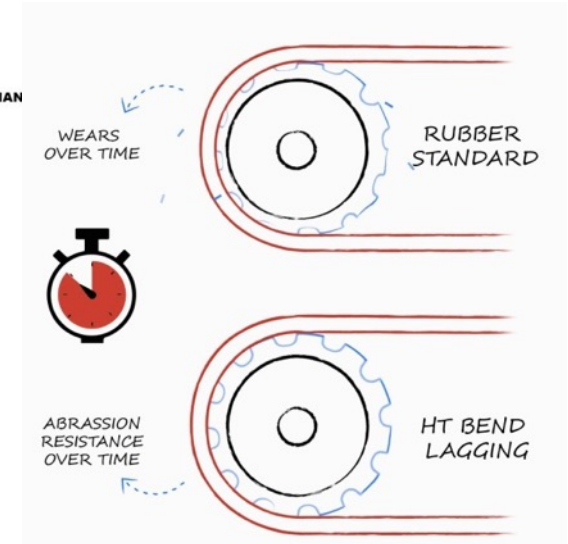
LAGGING REQUIREMENTS FOR HIGH TENSION BEND PULLEYS

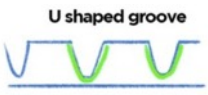
- Soft (60 Shore A), flexible and abrasion resistant to absorb high localised shear forces.
- Abrasion resistant - to resist wear and provide long service life.
- Strong bond to steel - to prevent debonding from the pulley shell.
- Flexible - to allow the lagging to deform and compensate for high localised shear forces and be resistant to build up of carryback.

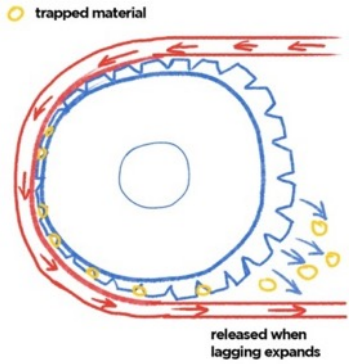


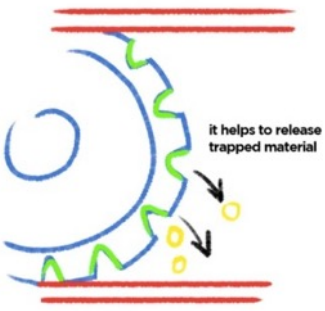












EXTREME RUBBER LAGGING

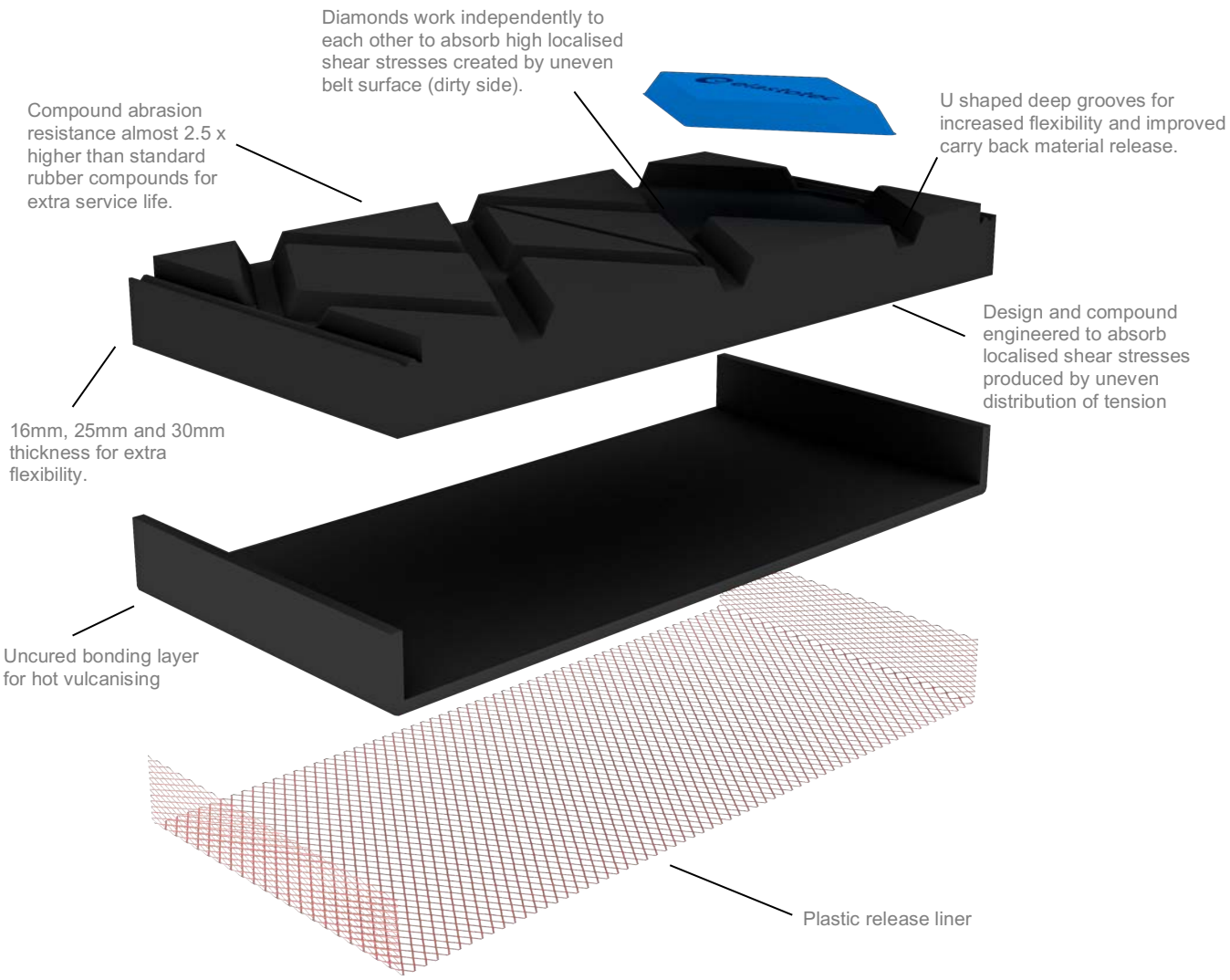
KEY FEATURES AND BENEFITS

- Soft (60A Duro), flexible abrasion resistant rubber to absorb high localised shear forces and protect the belt.
- Advanced bonding system provides 100% rubber tear adhesion to handle localised shear forces, extremes of temperature and wet operating conditions. This bonding system eliminates the chance of the lagging debonding from the pulley shell and the chance of separation of the lagging at the joins between strips.
- High performance abrasion resistant synthetic elastomer with typical abrasion of 29 mm3 volume loss (DIN53516 Method A Non rotating).
- Diamond pattern with large diamonds and deep grooves to provide flexibility to handle localised shear stresses and protect the conveyor belt.
- Reusable filled silicone infill strip used during lagging application curing process to ensure even pressure on surface.

EXTREME RUBBER LAGGING

This new lagging from Elastotec utilises advanced elastomer technology that has been developed to provide a level of operational performance far in excess to any lagging that is currently available.

DESIGN



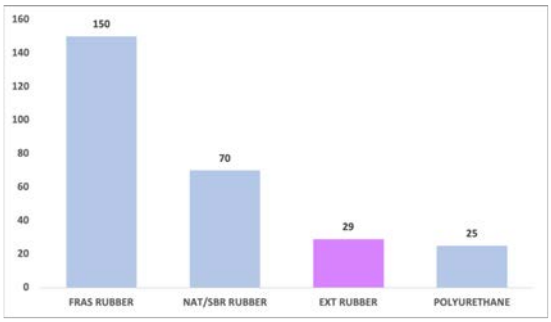
EXTREME RUBBER LAGGING

RUBBER SPECIFICATIONS

Typical values

Base polymer	Proprietary blend
Hardness range ASTM D2240	60
Tensile strength ASTM D412	17 Mpa
Elongation at break ASTM D412	550%
Abrasion loss (volume loss) DIN 53516 – non-rotating – method A	29mm^3

ABRASION RESISTANCE



Abrasion resistance max volume loss ISO 4649 method A (non-rotating)

ADHESION REQUIREMENTS

Typical values	*Adhesion*	*Failure Mode*	*Test Method*
Adhesion to steel @ +25 C	20N/mm & 100%	100% Rubber Tear	ASTM D429 method B 90 deg peel test
Adhesion to steel @ -40 C	20N/mm & 100%	100% Rubber Tear	ASTM D429 method B 90 deg peel test
Adhesion to steel @ +50 C	10N/mm & 100%	100% Rubber Tear	ASTM D429 method B 90 deg peel test

LAGGING SPECIFICATIONS – EXTREME RUBBER LAGGING

Lagging manufactured using an extremely abrasion resistant top rubber layer 60 Duro hardness. Design with large diamonds and deep U shaped grooves for extra flexibility to absorb concentrated shear stresses.

DIMENSIONS

PRODUCT	CODE	WIDTH	THICKNESS	LENGTH	WEIGHT/lm
Extreme Rubber Lagging 30mm	ELA-RL-EXT-HAR60-30V	249mm-251mm	30mm-31.2mm	Custom	8.20kg/m
Extreme Rubber Lagging 25mm	ELA-RL-EXT-HAR60-25V	249mm-251mm	25mm-26.2mm	Custom	7.00kg/m
Extreme Rubber Lagging 16mm	ELA-RL-EXT-HAR60-16V	249mm-251mm	16mm-17.2mm	Custom	6.40kg/m

Product code for different lengths: Add 5 digit number indicating length in mm.

Example: 25 mm 2200mm strip product code: ELA-RL-EXT-HAR60-25V-02200

Always allow 100 mm extra length over the pulley face width to have 50 mm at each end of overhang.

Thickness variation (all strips/pulley) +/-0.5mm

30mm thick lagging only recommended for pulleys with diameters over 1500mm.

25mm thick lagging only recommended for pulleys with diameters over 1200mm.

16mm thick lagging only recommended for pulleys with diameters over 550mm.

STORAGE

STORAGE RECOMMENDATIONS

- Stock usage based on a first-in first-out method (FIFO).
- The storage room for lagging must be cool, dry and dust-free.
- Avoid storage places near sources of ozone generating equipment.
- Do not store outside.
- Avoid storage in direct sunlight and strong artificial light as UV light can damage the products and may lead to a premature ageing.
- Under no circumstances should fuels, lubricants, acids, disinfectants, solvents or other chemicals be stored in the same storage area.
- Keep the storage place clean. Protect the material from dust, water etc. with suitable coverings.
- Allow 24 hours before use when lagging is removed from cold storage.

SHELF LIFE

HOT VULCANISED LAGGING AND WEAR PANELS

- <7°C and away from UV and ozone generating equipment 12 months. Products stored for longer than 6 months will need to be re-tested for adhesion before being used, and the recommended shelf life is 12 months.

ADHESIVES AND PRIMERS

- Store in flammable goods cabinet
- Stored <25°C
- Shelf life:
  - Primers: 2 years
  - Cold bonding adhesive: 2 years
  - Hot vulcanising adhesive: 12 months
  - Direct bond adhesive: 2 years

Products stored under the above conditions for longer periods of time than recommended need to be re-tested for adhesion before being used.

elastotec

For more information, please contact:

+61 2 8987 1922

1/61 Somersby Falls Rd
Somersby NSW 2050
Australia

sales@elastotec.com.au

Follow us /Elastotec

www.elastotec.com.au