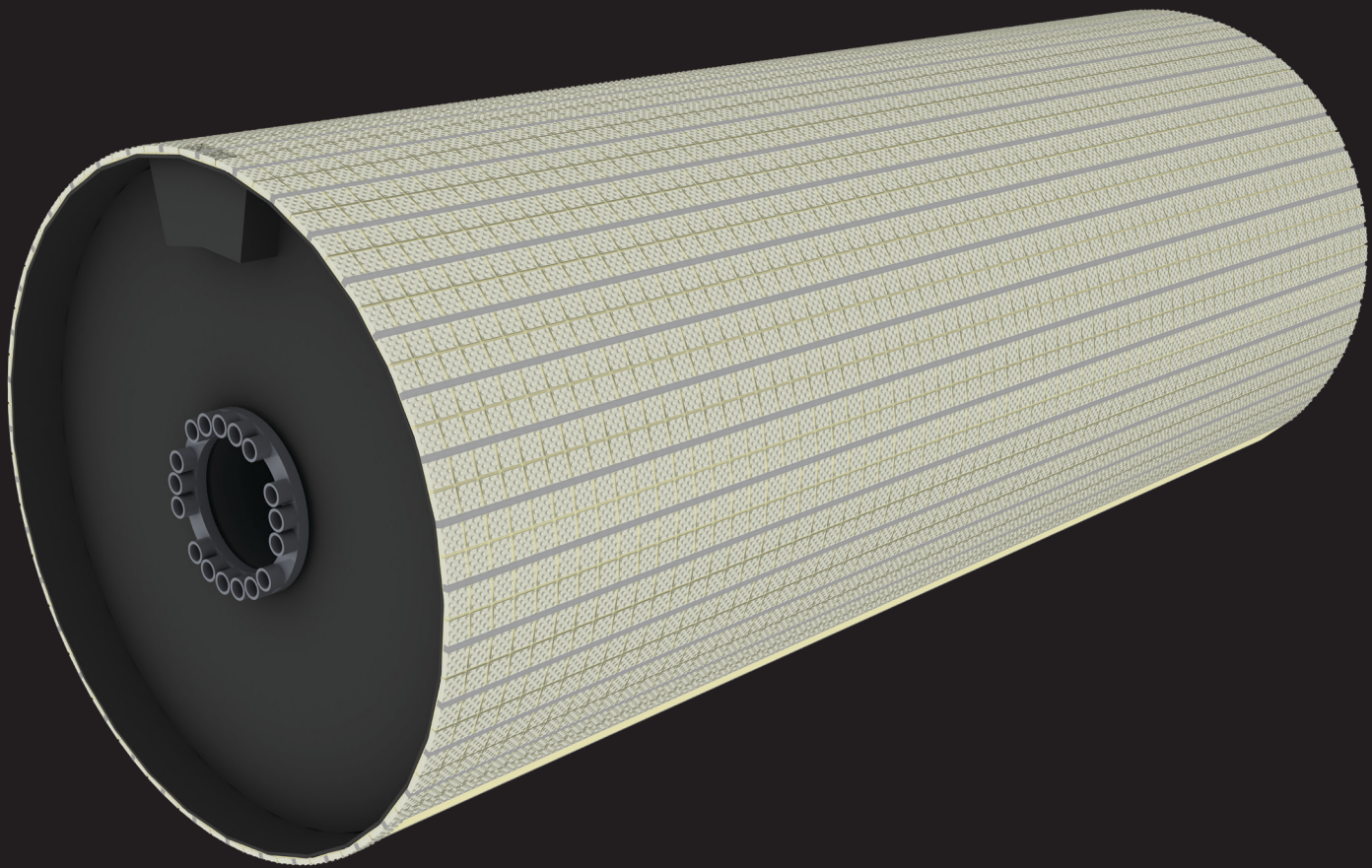




Direct Bond Ceramic Lagging



Engineered to Perform

Elastotec Direct Bond Ceramic Lagging is engineered for use on medium- to high-tension drive and non-drive pulleys. This system consists of ceramic tiles bonded directly to the pulley shell using a high-performance epoxy adhesive.

This method provides the highest level of adhesion to the pulley shell compared to alternative lagging systems. When correctly specified for the application and installed in accordance with recommended procedures, it delivers a durable, maintenance-free solution with excellent abrasion resistance and bond integrity.

However, these performance benefits come with reduced system flexibility. Unlike rubber-backed ceramic lagging, direct bond systems rely on a rigid epoxy adhesive, and the ceramic tiles have no capacity for movement, effectively forming a “fixed” interface with the pulley shell.

This lack of flexibility must be carefully considered during selection, as it may increase the risk of belt damage, tile dislodgement, or material build-up under certain operating conditions.

Application

As a specialist in pulley lagging solutions, Elastotec has developed a Direct Bond Ceramic Lagging system together with a dedicated application methodology.

This application method has been specifically engineered to deliver consistent, high-quality, and reliable outcomes across a wide range of operating and site conditions. To further ensure performance and quality control, Elastotec has established a network of Approved Applicators who are trained and certified in the correct implementation of the Direct Bond Ceramic Lagging system.



Key Features and Benefits

- Ⓢ High friction coefficient on drive pulleys.
- Ⓢ Grouted tiles decrease the risk of ingress and corrosion and have longer service life and superior bonding strength compared to any other lagging option.
- Ⓢ Maintenance-free, wear-resistant cover applied to pulley shells that contribute to reduced downtime and lower operating costs by improving traction in drive pulleys and providing a hard-wearing surface on non-drive pulleys.
- Ⓢ Drive Pulleys have dewatering grooves that dissipate water and can be hosed down without losing traction. And studs with rounded edges that present a less severe interface with the belt bottom cover.
- Ⓢ Smooth ceramic on non-drive pulleys provides a low maintenance surface with proven long service life under a variety of conditions.
- Ⓢ Innovative application method reduces application time and ensures tile alignment.

IMPORTANT CONSIDERATIONS FOR DIRECT BOND CERAMIC LAGGING

Direct Bond Ceramic Lagging is selected as a lagging solution due to its high adhesion strength of ceramic tiles to the pulley shell through the epoxy adhesive (>20MPa). In the right application, the direct bond provides a maintenance-free surface.

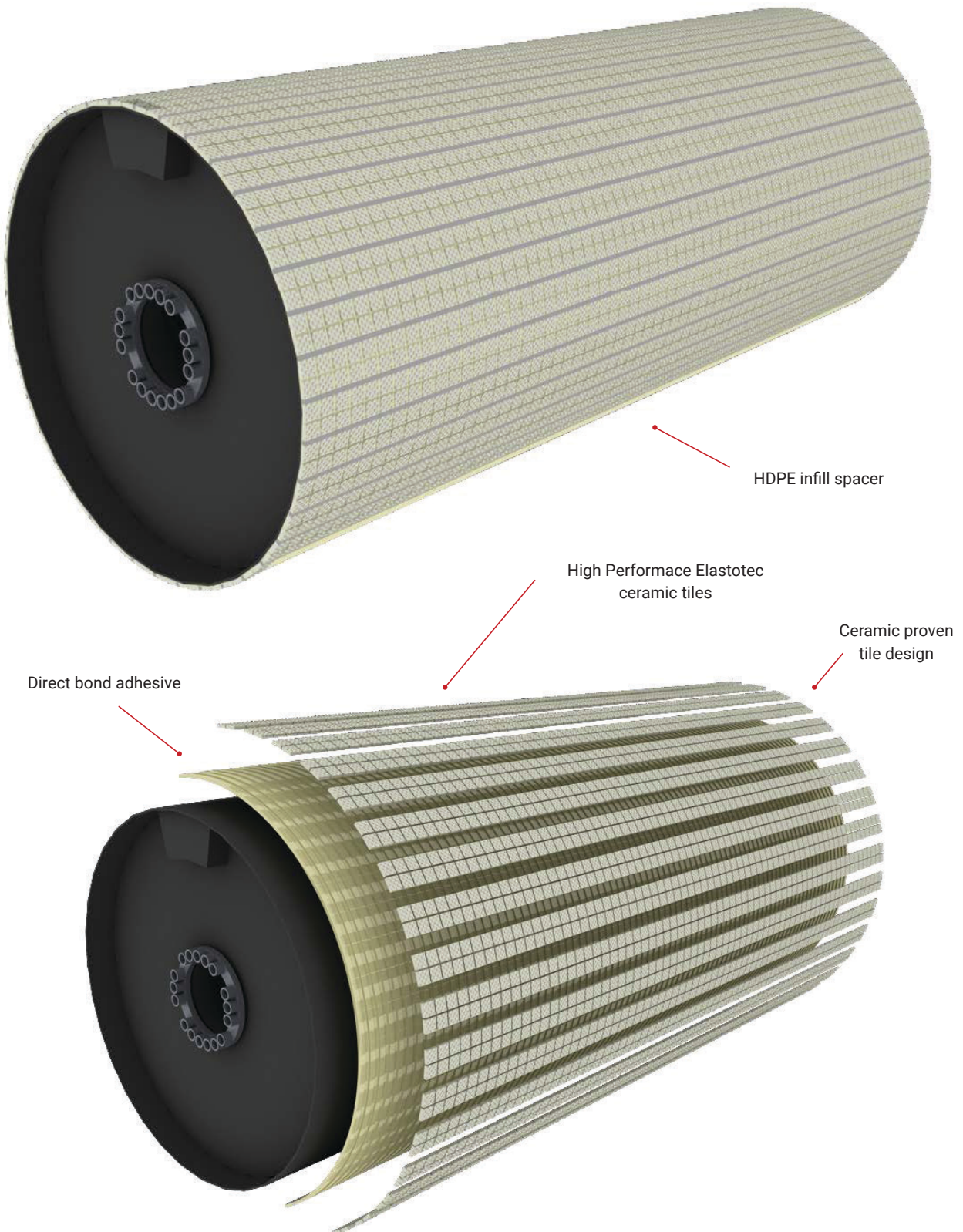
Direct Bond behaves differently to rubber-based laggings and needs to be carefully assessed before being selected. Direct Bond is a rigid pulley lagging and does not have the flexibility that rubber-based laggings have.

Aspects to consider when selecting Direct Bond Lagging:

- Ⓢ Maximum allowable pulley shell flexing in centre 0.5mm. Cyclic flexing of the pulley shell can cause tile debonding.
- Ⓢ Rubber-based laggings expand and contract when moving from the belt contact area to the non-belt contact area. This cyclic exercise helps prevent the build-up of material. Direct Bond Lagging is rigid and does not have the ability to expand and contract.
- Ⓢ Lagging and belt surfaces in contact are affected by cyclic stresses. On a drive pulley, belt tension goes from high T1 at the entry to lower T2 at the exit. The belt tries to retract from exit to entry. The belt retraction can cause localised slippage if lagging is not flexible enough to keep engagement. Direct Bond Ceramic Lagging needs to be evaluated for localised slippage before installation.

Design

Elastotec's unique Direct Bond Ceramic Lagging system was developed to provide a lagging for use on both drive and non-drive pulleys that provide exceptional levels of service life.



CERAMIC SPECIFICATIONS

Direct Bond Ceramic Lagging can be supplied in different ceramic tile thicknesses 6mm, 10.5mm and 13.5mm (tile body thickness) and in dimple and smooth surfaces.

Typical values

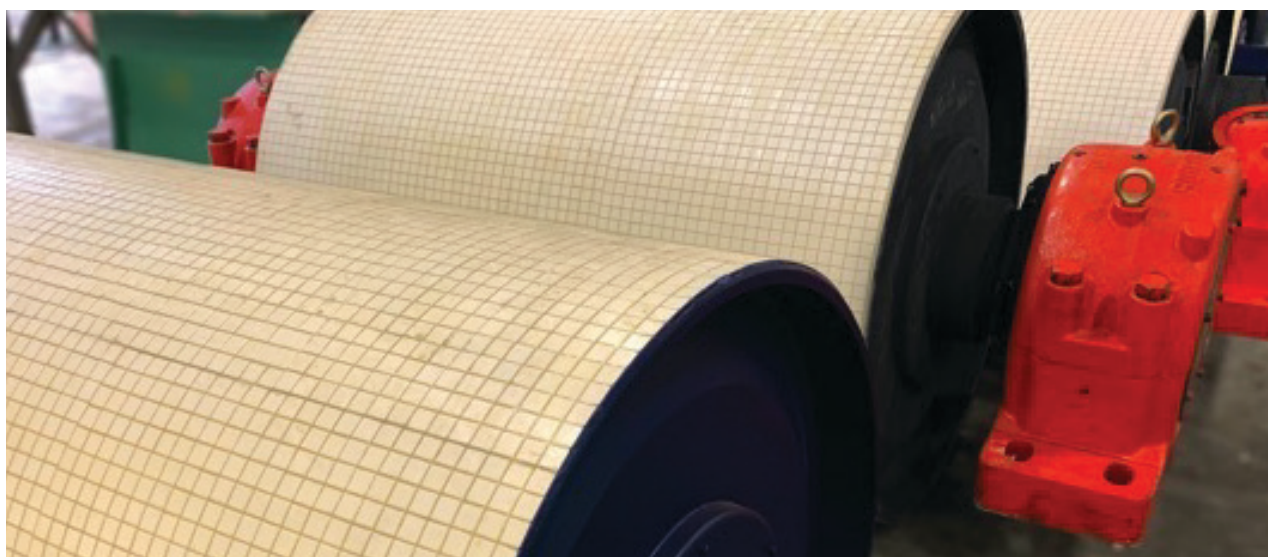
6mm Ceramic Tile		
	Drive	Non-Drive
Aluminium oxide	95%	92%
Specific gravity g/cm3	3.7	3.6
Vickers hardness (HV10)	1200	1000
Flexural strength (Mpa)	300	



10.5mm Ceramic Tile	
	Drive & Non-Drive
Aluminium oxide	95%
Specific gravity g/cm3	3.7
Vickers hardness (HV10)	1200
Flexural strength (Mpa)	300



13.5mm Ceramic Tile	
	Drive & Non-Drive
Aluminium oxide	95%
Specific gravity g/cm3	3.7
Vickers hardness (HV10)	1200
Flexural strength (Mpa)	300
Vickers hardness (HV10)	1200



PRIMER AND ADHESIVE SPECIFICATIONS

Elastotec Direct Bond Ceramic Lagging had an epoxy-based adhesion system. High-strength bonding system to provide adhesion of the ceramic tiles to the pulley shell >20MPa. Metal primer for application to the steel pulley shell immediately after sandblasting to prevent oxidation and a 2-part epoxy adhesive that can be mixed manually or through a pneumatic mixing gun to reduce waste.

The Elastotec Direct Bond Adhesive has been formulated to combine excellent adhesion to the steel pulley shell and the aluminium oxide tiles with robust processing characteristics. This adhesive has proven performance for outdoor service exposed to UV, water, dust, dirt, etc.

DIRECT BOND METAL PRIMER



DIRECT BOND ADHESIVE

Operating temperatures
-20°C to +50°C

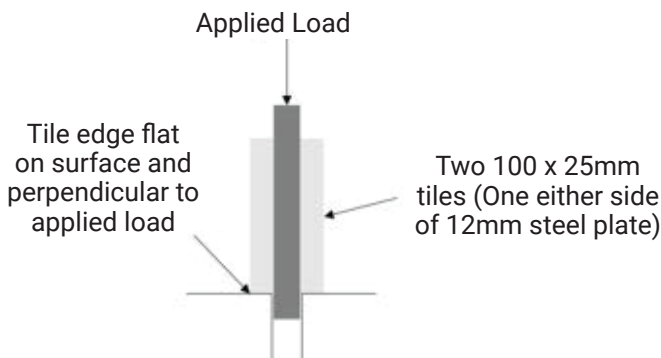


DIRECT BOND ADHESIVE HIGH-TEMPERATURE

Operating temperatures
-20°C to +110°C



TEMP °C	RECOMMENDED ADHESIVE	
25°C - 50°C	Elastotec Direct Bond Adhesive	25MPa
70°C	Elastotec Direct Bond Adhesive High Temperature	20MPa
110°C	Elastotec Direct Bond Adhesive High Temperature	13MPa



DIRECT BOND CERAMIC LAGGING DRIVE 6MM

DIMENSIONS

Pads 500mmx500mm Tiles 20x20x6mm.
With spacers every second row of tile



PRODUCT	CODE	TILE SIZE	TILE SEPARATION	TILES /PAD	PADS/ CARTON	PADS SIZE	SQM/ CARTON	WEIGHT/ SQM
Direct Bond Drive 6mm Tiles	ELA-DB CL-D-500-500-06	20x20x6mm +1mm dimples top +1mm dimples bottom	1.5mm	460	4	500x 500mm	1	21kg

DIRECT BOND CERAMIC LAGGING EXTREME DRIVE 10.5MM

DIMENSIONS

Pads 500mmx500mm Tiles 20x20x10.5mm.
With spacers every second row of tile



PRODUCT	CODE	TILE SIZE	TILE SEPARATION	TILES /PAD	PADS/ CARTON	PADS SIZE	SQM/ CARTON	WEIGHT/ SQM
Direct Bond Drive 10.5mm Tiles	ELA-DB CL-D-500-500-10.5	20x20x10.5mm +1.5mm dimple	2.5mm	440	4	500x 500mm	1	32kg

DIRECT BOND CERAMIC LAGGING EXTREME DRIVE 13.5MM

DIMENSIONS

Pads 500mmx500mm Tiles 20x20x13.5mm. With spacers every second row of tile

PRODUCT	CODE	TILE SIZE	TILE SEPARATION	TILES /PAD	PADS/ CARTON	PADS SIZE	SQM/ CARTON	WEIGHT/ SQM
Direct Bond Drive 13.5mm Tiles	ELA-DB CL-D-500-500-13.5	20x20x13.5mm +1.5mm dimple	2.5mm	440	4	500x 500mm	1	40kg

DIRECT BOND CERAMIC LAGGING NON DRIVE 6MM

DIMENSIONS

Pads 500mmx500mm Tiles 20x20x6mm.



PRODUCT	CODE	TILE SIZE	TILE SEPARATION	TILES /PAD	PADS/ CARTON	PADS SIZE	SQM/ CARTON	WEIGHT/ SQM
Direct Bond Non Drive 6mm Tiles	ELA-DB-CL-ND-500-500-10.5	20x20x 6mm	1.5mm	529	4	500x 500mm	1	21kg

DIRECT BOND CERAMIC LAGGING EXTREME NON DRIVE 10.5MM

DIMENSIONS

Pads 500mmx500mm Tiles 20x20x10.5mm.

PRODUCT	CODE	TILE SIZE	TILE SEPARATION	TILES /PAD	PADS/ CARTON	PADS SIZE	SQM/ CARTON	WEIGHT/ SQM
Direct Bond Non Drive 10.5mm Tiles	ELA-DBCL-ND500-500-10.5	20x20x 10.5mm +1.5mm dimple on bottom	2.5mm	440	4	500x 500mm	1	32kg

DIRECT BOND CERAMIC LAGGING EXTREME NON DRIVE 13.5MM

DIMENSIONS

Pads 500mmx500mm Tiles 20x20x13.5mm.

PRODUCT	CODE	TILE SIZE	TILE SEPARATION	TILES /PAD	PADS/ CARTON	PADS SIZE	SQM/ CARTON	WEIGH T/ SQM
Direct Bond Non Drive 13.5mm Tiles	ELA-DBCL-ND-500-500-13.5	20x20x 13.5mm +1.5mm dimple on bottom	2.5mm	440	4	500x 500mm	1	40kg



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

DIRECT BOND LAGGING AND WEAR PANELS

- ☞ Stored <25°C 5 years shelf life
- ☞ Inspect and evaluate condition of backing tape after 5 years

COLD BOND LAGGING AND WEAR PANELS

- ☞ Stored <25°C 3 years shelf life
- ☞ Light buffing of bonding surfaces is recommended if over 4 months from production date

HOT VULCANISED LAGGING AND WEAR PANELS

- ☞ Stored <7°C 12 months shelf life
- ☞ Store away from UV and ozone generating equipment
- ☞ Products stored for longer than 12 months require adhesion testing before use

ADHESIVES AND PRIMERS

- ☞ Store in flammable goods cabinet
- ☞ Shelf life Stored <25°C
 - Primers: 2 years
 - Cold Bonding adhesive: 2 years
 - Direct Bond adhesive: 2 years
- ☞ Shelf life Stored <7°C
 - Hot vulcanising adhesive: 12 months

IMPORTANT: For HV Rubber Cement stored at <7°C ensure this is brought to room temperature over a minimum of 24 hours before the drums are opened. This is to prevent condensation of water and contamination of the rubber cement.



+61 (0)2 8987 1922



sales@elastotec.com.au



elastotec.com.au



61 Somersby Falls Rd,
Somersby NSW 2250, Australia