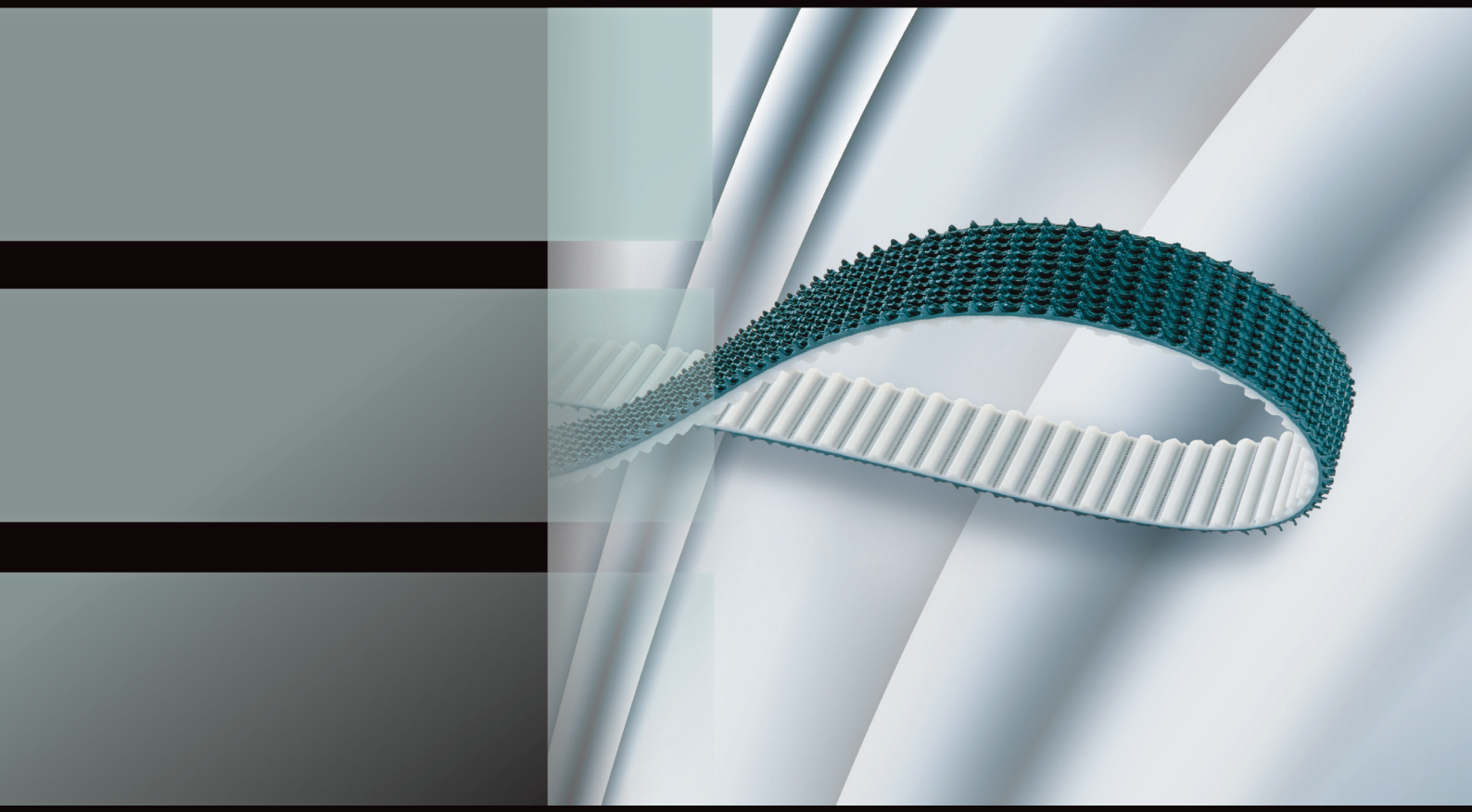
ELATECH® Conveying Applications



Elatech
Technology in Motion.

Polyurethane belts for conveying applications:

Backings

The unique chemical and mechanical features of ELATECH® belts together with the possibility of a wide range of backings in different materials make ELATECH® belts ideal for all conveying applications where synchronization is required. The engineer designer has unlimited possibilities to make a unique design.

Minimum pulley diameter
The minimum pulley diameter can be calculated by means of the "pulley multiplier" shown for each type of backing.

Minimum pulley diameter = backing thickness x pulley multiplier C_D

As a general rule, we may say that the smaller the pulley, the thinner the backing has to be.
The diameters obtained are valid for application with speed up to 1 m/s and a temperature of 20° C.
If smaller pulley diameters are needed, please contact Elatech's technical dept.

Drive with reverse bending
ELATECH® polyurethane timing belts are suitable for drives with reverse bending. Tension should be adjusted, depending on backing hardness.

Temperature range
The choice of the correct backing may allow the conveying of hot items. However, the toothed structure of the belt must not be exposed to temperatures over 80° C.
The minimum contact temperature should be -10° C for all backing materials, however, special material compounds may be available for lower temperatures. In such cases, please check with Elatech's technical department.

Coefficient of friction
The values shown in the table refer to the approximate static coefficient of friction against steel.
In order to reduce the pulley's diameter, it is possible to splice the backing allowing a better flexibility. Pulley diameter, should never be smaller than the minimum diameter recommended for the standard belt.
Please ask ELATECH's technical dept. for further details on coefficient of friction with other materials.

Colours
Standard colours shown in the table may change without notice. Special/personalized colours are available on request.

Chemical resistance
The values given in the table for the resistance to oils and fat of each backing material are purely indicative and may vary depending on the concentration and the temperature of chemical agents. When in doubt, please check with Elatech's technical department.

General remarks
ELATECH's wide range of different backings can be grouped into four main categories: cellular, PVC & PU, rubber, and special. Each different category provides special features and top quality performance and endurance making the various backings especially suitable for specific applications. These features include different degrees of hardness, cellular, fabric, felt or solid material compounds, different levels of grip, FDA-compliant materials, antistatic materials, different resistance to oils and fats, and different resistance to abrasion, tear and wear.
Such variety, combined with top quality mechanical and technical properties and state of the art manufacturing systems and techniques including the application of different flights and cleats, the combination of different backing materials, the slitting and grinding of the final product to match exact dimensions and shapes without any burrs or any other imperfections left on the surface, as well as water jet cutting for extremely precise perforations, make ELATECH®'s coated belts the best and the most reliable solution for specific applications in the most diversified fields of industry.

FABRIC

Polyamide fabric backings
The special polyamide fabric backings allow a reduction of the friction coefficient and when applied on teeth, decrease noise in high speed drives. They are very useful in applications with sliding surfaces or product accumulation.
Polyamide fabrics with antistatic properties are available.

PAZ: Polyamide backing on tooth side.
Reduces coefficient of friction and allows a smoother tooth engagement.

PAR: Polyamide backing on back side.
Reduces coefficient of friction.

PAZ-PAR: Polyamide backing on both tooth and back side

Coefficient of static friction

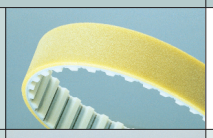
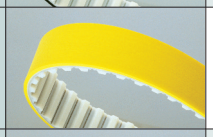
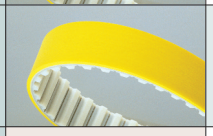
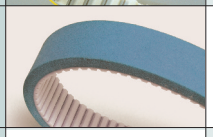
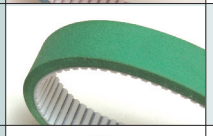
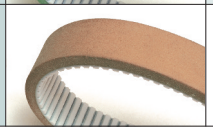
- Polyurethane on steel $\mu = 0,7$
- Polyamide on steel $\mu = 0,35$
- Polyurethane on aluminum $\mu = 0,8$
- Polyamide on aluminum $\mu = 0,45$

Elatech Code	Description		
TZ11	PAZ Standard		Nylon fabric on teeth
TZ21	PAR Standard		Nylon fabric on back
TZ15	PAZ Antistatic		Antistatic nylon fabric on teeth
TZ25	PAR Antistatic		Antistatic nylon fabric on back

CELLULAR

Polyurethane / Rubber foam backings are easily compressible according to the cellular structure of the material. Due to this main characteristic, common applications are: labelling equipment, light and/or fragile materials conveying, glass and paper industry, vacuum conveyors.

Pulley diameter: C_D • Backing Thickness

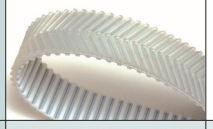
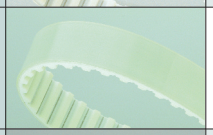
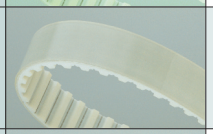
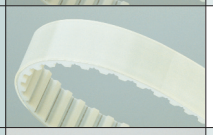
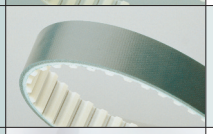
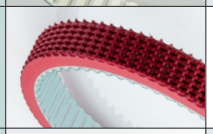
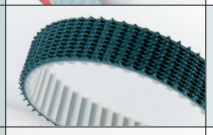
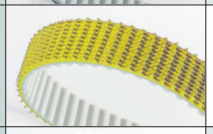
Elatech Code	Description		Material	Color	Hardness [°Sh A]	Standard thickness [mm]	Max contact temperature	Oil and fat resistance	Coefficient of static friction on steel	FDA food grade	Pulley multiplier C_D
CFX	**CELLOFLEX**		Microcellular elastomeric polyurethane	brown / yellow	-	3 - 10	+80°C	medium	0,3	No	16
POR	**POROL**		cellular rubber	black	ca 15	3, 5, 8,10,15	+70°C	medium	0,8	No	6
PY50	**PU YELLOW 50**		polyurethane	yellow	50	2, 3, 4, 5 6 ,8,10	+70°C	high	0,8	No	20
PY70	**PU YELLOW 70**		polyurethane	yellow	70	2, 3, 4, 5, 6, 8,10	+80°C	high	0,75	No	25
SYL-B	**SYLOMER BLU**		Elastomeric PUR	blue	-	6, 12, 25	+70°C	medium	0,5	No	12
SYL-V	**SYLOMER GREEN**		Elastomeric PUR	green	-	6, 12, 25	+70°C	medium	0,5	No	14
SYL-M	**SYLOMER BROWN**		Elastomeric PUR	brown	-	6, 12, 25	+70°C	medium	0,5	No	15

PVC and PU

PVC has a high coefficient of friction and a good resistance to acids. Due to its versatility, it is used in many applications in the paper, glass, ceramic industry, labelling and packing equipment. Its quality allows the application in food industry processes.

Among all synthetic materials and rubber compounds, polyurethane is the material which offers the best resistance to abrasion. Polyurethane films of different thickness and different shore hardness, applied on ELATECH® belts, are an ideal solution in many applications in the wood processing, ceramic and glass industry.
On request it is possible to supply polyurethane backings approved for food contact.

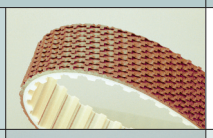
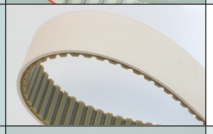
Pulley diameter: C_D • Backing Thickness

Elatech Code	Description		Material	Color	Hardness [°Sh A]	Standard thickness [mm]	Max contact temperature	Oil and fat resistance	Coefficient of static friction on steel	FDA food grade	Pulley multiplier C_D
FBPU	**FISHBONE PU**		PU	transparent	70 / 85	4	+70°C	medium	0,7	No	18
FBPVC	**FISHBONE PVC**		PVC	white	65	4	+80°C	high	0,7	Yes	18
PUR70	**PUR70**		PU	transparent	70	2 - 5	+70°C	high	0,7	No	25
PUR85	**PUR85**		PU	transparent	85	2 - 5	+70°C	high	0,6	No	30
PVCW	**PVC WHITE**		PVC	white	ca 65	2,3	+90°C	medium	1,0	Yes	35
PVCG	**PVC GREEN**		PVC	green	ca 40	1	+90°C	high	0,9	No	40
SG50R	**SUPERGRIP 50 R**		Thermoplastic compound	red	55	4,5 - 12	+80°C	medium	0,9	No	12
SG60	**SUPERGRIP 60 GL**		PVC	green	60	4,5	+90°C	medium	0,9	No	12
SG70	**SUPERGRIP 70 Y**		PU	yellow	70	4,5	+80°C	high	0,8	No	12
MG	**MINIGRIP PVC**		PVC	green	ca 65	1,5	+100°C	medium	0,4	No	40

RUBBER

Many different rubber backings in both synthetic and natural rubber are available. Due to rubber's high friction coefficient and high temperature resistance, ELATECH® polyurethane belt with rubber backing is used in many different conveying application: paper industry, ceramic industry, wood processing industry, glass industry, labelling and packaging machines.

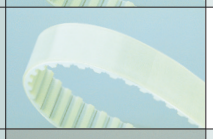
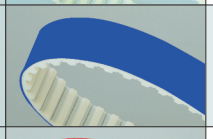
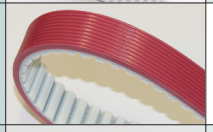
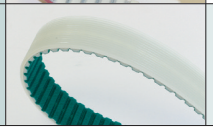
Pulley diameter: C_D • Backing Thickness

Elatech Code	Description		Material	Color	Hardness [°Sh A]	Standard thickness [mm]	Max contact temperature	Oil and fat resistance	Coefficient of static friction on steel	FDA food grade	Pulley multiplier C_D
SG50T	**SUPERGRIP 50 RT**		natural rubber	red	40	4,5	+80°C	low	1,0	No	15
LTX	**LINATEX**		natural rubber	red	ca 40	2,4 - 3,2 - 4,8 6,4 - 8,0 - 9,6	+70°C	low	1,1	No	15
LNP	**LINAPLUS**		natural rubber	white	ca 40	2,4 - 3,2 - 4,8 6, 4 - 8,0 - 9,6	+70°C	low	1,1	Yes	15
LTR	**LINATRILE**		nitrile rubber	orange	ca 55	3 - 6	+110°C	medium	1,0	No	20
NBR	**NITRILE**		nitrile rubber	black	65	-	+110°C	high	0,7	No	18
NBR-W	**NITRILE**		nitrile rubber	white	65	-	+80°C	high	0,7	No	18
TNX	**TENAX / ISOGUM**		rubber	red	40	2 - 15	+60°C	low	0,75	No	15
VTN	**VITON**		FKM Fluoroelastomer	black	ca 75	2/4	+275°C	high	0,7	No	30
RP400	**YELLOW RUBBER**		natural rubber	yellow	ca 35	3 - 4 - 5 - 6 - 8 10 - 12 - 15 20 - 25 - 30	+65°C	low	1,2	No	13
CRX	**CORREX**		para rubber	brown	ca 40	6 - 10	+60°C	low	0,9	No	15

SPECIAL

Special backings are available in quite a different range of materials to cover even the most demanding design requirements.

Pulley diameter: C_D • Backing Thickness

Elatech Code	Description		Material	Color	Hardness [°Sh A]	Standard thickness [mm]	Max contact temperature	Oil and fat resistance	Coefficient of static friction on steel	FDA food grade	Pulley multiplier C_D
APL	**APL**		Thermoplastic compound	red-purple	55	3,5	+60°c	high	0,7	No	25
SLC	**SILICONE**		Silicon	transparent	30	3 - 10	+200°C	high	1,0	No	20
SLCPU	**SILICONE**		Special Silicon Compound	white	60	3 - 10	+200°C	high	0,85	No	20
SLCF	**SILICONE FDA**		Silicon	blue	30	3 - 10	+220°C	high	1,1	Yes	20
TG50	**TECNOGUM 50**		Thermoplastic rubber compound	red	ca 50	1 - 6	+80°C	high	0,7	No	20
TG70	**TECNOGUM 70**		Thermoplastic rubber compound	red	ca 70	1 - 6	+80°C	high	0,6	No	25
CHRL	**CHROME LEATHER**		Chrome leather	grey / blue	-	3	+80°C	high	0,8	No	30
TZ26	**TZ PAR**		HDPE	green	-	0,3	+80°C	high	0,18	No	-
APLM	**MULTIRIB**		Thermoplastic compound	red	60	3,5	+80°C	medium	-	No	-
APLM-T	**MULTIRIB**		Thermoplastic compound	trasparent	60	3,5	+80°C	medium	-	No	-