BEHAbelt®
Made in Germany

Elastic monolithic conveyor belts

Product overview, applications, features and accessories

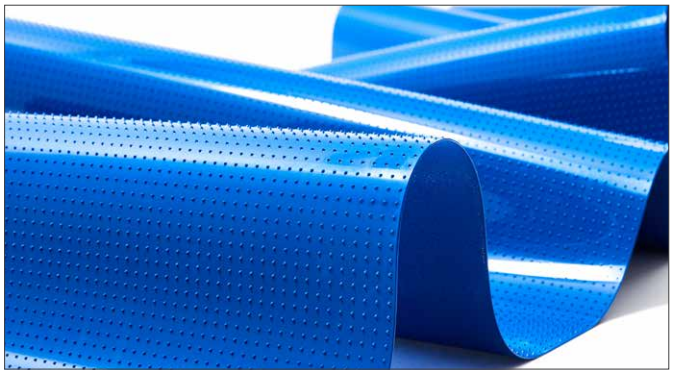
> **“ Where the advantage of the monolithic elastic belt design will improve the food safety and/or customer handling, this will influence actual and future machinery designs and replace continuously traditional conveyor belts. “**

CONTENT

Elastic monolithic conveyor belts

BEHAbelt aims to offer innovative solutions in high quality to customers. There is already a huge variety of belting categories and design variations available on the market. However, the increasing automation of industrial production processes and machines requires ongoing evolution. Only if all components and their features keep pace, real improvements in terms of efficiency, capacity and safety can be achieved.

This is where the new elastic monolithic conveyor belts by BEHAbelt deliver an important contribution. These products enable longevity improvements and minimize risks like layer delamination or edge fraying versus conventional coated conveyor belts with fabric carcasses.



Friction-driven elastic conveyor belts

These conveyor belts are installed in the system with a pretension of 0.5-5%. The precise pretension ensures optimum power transmission and thus optimises the bearing load and ultimately your energy costs. The belts are guided e.g. via crowned pulleys or welded-on V-guides.

Positive driven elastic conveyor belts

The AT5 conveyor belts from BEHAbelt enable slip-free transport, even with the smallest pulley diameters of only Ø 18 mm. This means that even conveyor sections with the smallest transfer conditions can now be realised with a slip-free belt solution.

ADVANTAGES

PRODUCT DESIGN	HANDLING
No risk of contamination based on exposed belt fabrics or due to mechanical damage to belt edges Hygiene and support for your HACCP concept. Excellent cleanability, hydrolysis-resistant and microbial-resistant. Additional features; e.g. metal and X-ray detectable, UV-C resistant, antistatic discharge. Reduced energy consumption due to high longitudinal flexibility and thus also gentle motor and shaft loading: Very good belt tracking in under-square applications:	Easy installation of elastic belt versions due to elasticity. Softer belts allow even a hand mounted possibility with fixed centre to centre machinery designs without any take up. Butt-end weldings can be made with user-friendly tool, which ensures no loss of surface structure, homogeneity and elasticity in the joining Accessories such as corrugated sidewalls, cleats, V-guides and other profiles can be welded on excellently.

INDUSTRIES AND APPLICATIONS

Elastic monolithic conveyor belts are especially beneficial for the various applications to convey unwrapped foodstuff. Furthermore, this design and the special features are opening up interesting opportunities way beyond that, for example in:

INDUSTRIES	APPLICATIONS
Food (Fish, Meat, Poultry, Fruit & Vegetable, Confectionery and Bakery) Packaging (Food and Non-Food) Pharmacy Logistics and Material Handling	General conveying, Separation and Acceleration Weighing, Sorting, Portioning Feeding, Cutting, Detecting (metal detectors) and many more

Suitable belt designs

We are very interested in our customers‘ applications, so that we can continuously improve them by further developing our product range and know-how. The variety of combinations of surfaces, material properties and colours of BEHAbelt‘s monolithic conveyor belts is almost unique on the market.

SURFACES

Currently, you can choose from a variety of patterns, which can be combined with each other on the top and bottom side in almost any way. Five of these structures (Nub Top, Diamond, smooth mat, as well as longitudinal and transversal grooves) are also available with the unique ‘MICROclean’ surface treatment.

MATERIAL PROPERTIES

BEHAbelt conveyor belts also offer very useful special properties that make them suitable for even the most demanding conveyor belt applications.

FDA EC — FDA/EC conformity for direct contact with food.

METAL X-RAY — Metal and X-ray detectable conveyor belts for maximum food safety. These products are part of the PU SAFE range.

Hydrolysis resistant conveyor belts for optimal performance in warm, wet and humid environment.

MICRO CLEAN — Unique surface finish with rounded structure for optimal release properties and easy cleaning.

ISO 340 — Flame-retardant conveyor belt tested according to ISO 340 and ASTM D378.

Antistatic conveyor belts with excellent mechanical properties.

UV — Particularly protected against UV-C radiation

The microbial resistant conveyor belts do not provide a breeding ground for microorganisms.

2K — The 2-component production process allows for the combination of different material hardnesses, properties and colours.

VEGAN — Exclusive use of raw materials of non-animal origin.

HARDNESS

BEHAbelt distinguish between two hardness ranges.

SOFT	PU65A, PU75A, PU80A
HARD	PU95A/55D, TPE55D/63D

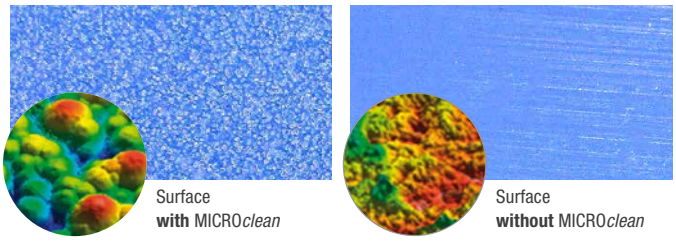
THICKNESS

Conveyor belts are available in different thicknesses from 0,9 - 4 mm.

0,9 mm
1 mm
1,2 mm
1,6 mm
2 mm
2,5 mm
3 mm
4 mm

Special features

MICRO*clean* – UNIQUE SURFACE FINISH



Surface **with** MICRO*clean*

Surface **without** MICRO*clean*

Traditional conveyor belt surface smooth glossy (SG)

MICRO*clean* surface smooth matt (SM)

MICROclean offers **improved belt cleaning** thanks to its wave-like surface. This makes it easier to remove product residues.

In addition, MICROclean provides for **improved product release**, which especially simplifies the transfer of the product to the next transport section.

2 HARDNESS BELT DESIGN

The production variant with two components opens up a multitude of possibilities for combining different hardnesses and structures in a single conveyor belt. This enables us to perfect your machine design as your development partner.

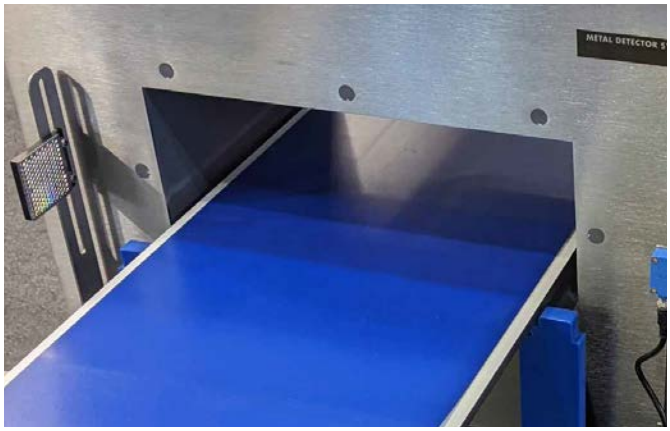
For example, when designing the belt for incline conveyors, the top side can have more grip, but the bottom side can have good sliding properties.

UV-C RESISTANCE

More and more conveyor systems are being equipped with UV-C emitters to support regular cleaning. This helps to better control the germ count on food contact surfaces, even during the production process. Without protection, this type of irradiation can cause embrittlement and discolouration of the belt surface.

By adding UV-C protection to our raw materials, we guarantee a longer service life and safety under such application conditions.

METAL AND X-RAY DETECTABLE



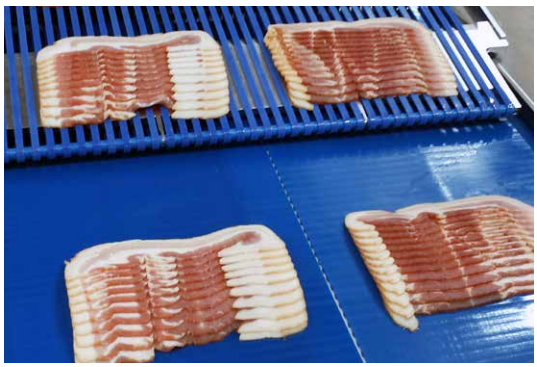
Contamination with foreign products, such as plastic particles, poses a major risk in the food industry. Avoiding and detecting such incidents is a major challenge in practice, as plastic parts in particular are difficult to detect.

Thanks to a special formula, BEHAbelt PU80Asafe conveyor belts make it possible to remove particles above a certain size (according to the adjustment of the equipment used) from the production process using metal and X-ray detectors.

Requirements and solutions

As manifold as the design options and fabrication varieties for conveyor belts, as versatile are the special requirements in the various industries, processes and applications. Some important criteria and applicable BEHAbelt solutions are summarized in the following charts.

INDUSTRY	REQUIREMENTS	BEHABELT SOLUTIONS AND FEATURES OF ELASTIC MONOLITHIC CONVEYOR BELTS
FOOD	Reliable product conveying, waste reduction	The specific selection of PU-Shore hardness and conveyor belt surface structures enable an optimal alignment with your goods in terms of grip, positioning and release properties.
	Food safety	Our elastic food conveyor belts are made of FDA/EC compliant materials. Especially for demanding applications in food processing, we can equip our belts with features like hydrolysis or UV-C resistance, detectable, antistatic or the unique MICROclean surface finish. The monolithic product design and use of FDA/EC compliant materials support safety and HACCP in food processing.
	Cleanability and longevity	Wear resistant, durable and hydrolysis resistant raw materials guarantee longevity, even in a warm, wet and humid environment and if regular cleaning is applied.
PACKAGING	Precise positioning and grip of goods on belts, even at elevated speed	The choice of different surface structures enables a specific alignment between coefficient of friction, grip and release features of a conveyor belt. At the same time the selected belt design allows small pulleys, hence gentle transfer of goods.

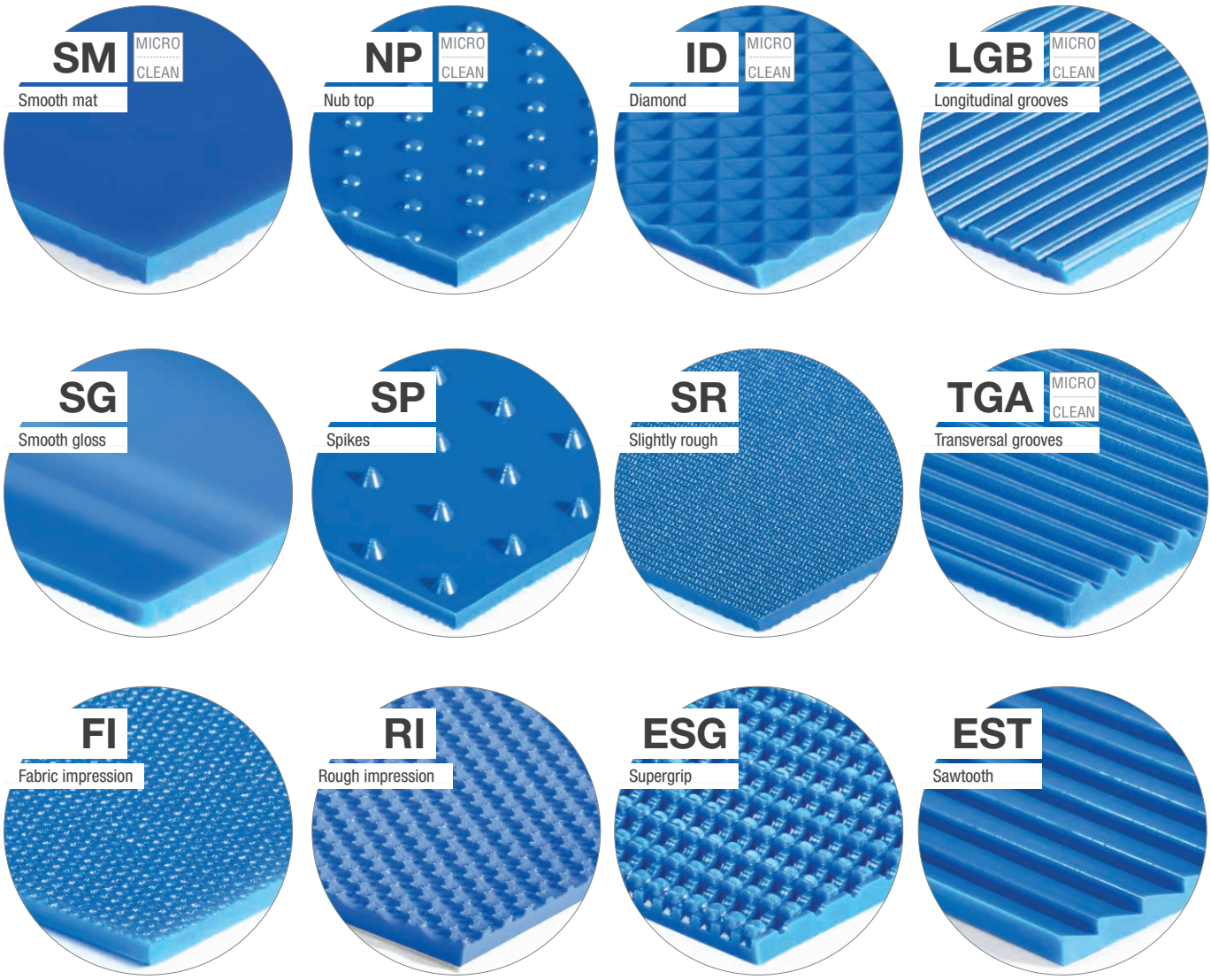


Besides all mentioned features in these charts, the BEHAbelt elastic monolithic belts are offered with the unique MICRO*clean* surface finish. Detailed information on that can be found on page 5.

INDUSTRY	REQUIREMENTS	BEHABELT SOLUTIONS AND FEATURES OF ELASTIC MONOLITHIC CONVEYOR BELTS
PHARMACY	Ensure high process safety and hygiene conditions	The conformance with utmost hygiene standards is ensured by FDA/EC compliant materials and belts that are easy to clean.
INTRA-LOGISTICS	Longevity and reliability	Wear resistant raw materials, antistatic features and the selection of a specific conveyor belt design are the basis for longevity and reliability of our products in your conveyor system.
MATERIAL HANDLING	Longevity, reliability and gentle handling of goods	BEHAbelt has many years of experience and well trained application engineers, to define the optimal combination of conveyor belt material, design and special features for each individual customer.
ACROSS ALL INDUSTRIES	Avoid downtime	BEHAbelt elastic monolithic belts can be supplied tailor made and fabricated to the final dimension or quick and easy installed onsite. This reduces downtime to an absolute minimum.
	Efficiency and process safety	Carefully selected and configured conveyor belts, made of durable, wear resistant materials, guarantee a reliable performance and minimal maintenance in your application, thus reduce your TCO's (Total Cost of Ownership).
	Optimized equipment design	Elastic belts are extremely easy to install. Therefore, complicated tensioning device can be avoided in many cases, which enables a more simple and user friendly conveyor design.

Overview belt structures / Features

The belt structures shown here can be combined in almost any way you like. You also have the option of customised colouring and the addition of optional product properties, such as UV-C resistance or antistatic conductivity; see pages 4 and 5.



MATERIAL FEATURES

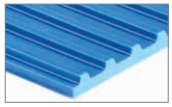
- FDA/EC conformity for direct contact with food
- X-Ray and metal detectable
- Antistatic discharge
- Use of raw materials of non-animal origin
- Hydrolysis resistant
- Unique surface finish
- The belt consists of two components for the top and bottom
- Particularly flexible at low temperatures down to -30°C
- Microbial resistant
- Protected against UV rays
- Flame retardant according to ISO 340

COLORS

ultramarine blue · capri blue · sky blue · black · transparent · white

Slip-free AT5 conveyor belts.

The positive driven AT5 conveyor belts enable slip-free transport, even with the smallest pulley diameters of just Ø 15 mm. This means that conveyor sections with the smallest transfer conditions can now also be realised with a slip-free belt solution. Thanks to the careful selection of raw materials for direct food contact, the belt solutions offer very good resistance to microbes, hydrolysis and chemicals.



BOTTOM SIDE: AT5 // 700 mm

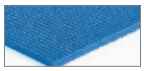
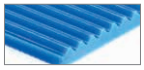
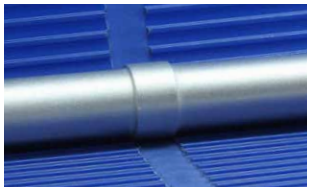
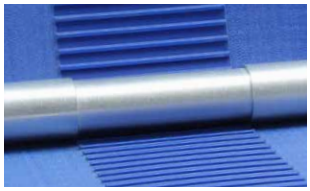
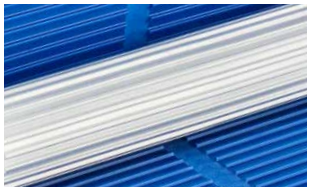
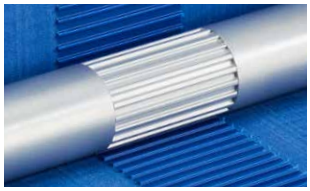
Top side	Color	Additional Features	Quality	Hardness	Belt thickness		Recommended Min. pulley ∅*		k1% static		k1% relaxed		Standard roll		Recommended pretension	Order No.
				Shore	mm	inch	mm	inch	N/mm	lbs/inch	N/mm	lbs/inch	m	ft		
 Slightly rough (SR)	UB		PU80A	84 A	2,2	0,09	15	0,59	0,39	1,86	0,27	1,30	50	164	2%	FBFJ750X22LP
	UB		PU95A	95 A	2,2	0,09	22	0,79	0,57	3,22	0,40	2,26	50	164	1%	FBFM750X22LA
	UB	2K	PU65A PU80A	72 A 84 A	3,0	0,118	18	0,7	0,50	2,90	0,35	2,00	50	164	2%	FBFJG750X3LE
 Smooth mat (SM)	UB	MICRO CLEAN 2K	PU65A PU80A	72 A 84 A	3,0	0,118	18	0,7	0,50	2,90	0,35	2,00	50	164	2%	FBFJG750X3L
	UB	MICRO CLEAN 2K	PU65A PU95A	72 A 95 A	3,0	0,118	28	1,1	0,68	3,90	0,48	2,70	50	164	1%	FBFMG750X3L
 Transversal grooves (TGA)	UB	MICRO CLEAN 2K	PU65A PU80A	72 A 84 A	3,8	0,149	28	1,1	0,50	2,90	0,35	2,00	50	164	2%	FBFJG750X38A
 Nub top (NP)	UB	MICRO CLEAN 2K	PU65A PU80A	72 A 84 A	3,2	0,125	25	1,0	0,50	2,90	0,35	2,00	50	164	2%	FBFJG750X3LC
 Diamond (ID)	UB	MICRO CLEAN 2K	PU65A PU80A	72 A 84 A	3,0	0,118	18	0,7	0,47	2,70	0,33	1,90	50	164	2%	FBFJG750X3LD
	UB	MICRO CLEAN 2K	PU65A PU95A	72 A 95 A	3,2	0,125	28	1,1	0,68	3,90	0,48	2,70	50	164	1%	FBFMG750X32L
 Spikes (SP)	UB	2K	PU65A PU80A	72 A 84 A	3,0	0,118	25	1,0	0,50	2,90	0,35	2,00	50	164	2%	FBFJG750X3LB
	UB		PU95A	95 A	3,0	0,118	38	1,5	1,0	5,80	0,70	4,06	50	164	1%	FBFM750X3LE

ILLUSTRATION OF DRIVE AND GUIDE CONCEPTS

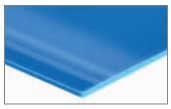
The interaction of AT5 (also T5) drive with optimum belt guidance ensures tracking stability and slip-free drive.

Several guide grooves basically increase the guide stability of the belt, whereby the arrangement of the guide grooves should preferably be centred in the middle of the belt and in the inner third of the belt width. Guide grooves near the outer edges of the belt are not recommended.

	Guiding groove	Guiding bar
Guide		
Drive		

* recommended pulley design: AT5 (T5 also possible as an option)

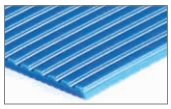
Conveyor belts 730



FDA EC

TOP SIDE: SMOOTH GLOSS (SG)

Bottom side	Color	Additional Features	Quality	Hardness Shore	Belt thickness mm	Belt thickness inch	Recommended Min. pulley ∅ mm	Recommended Min. pulley ∅ inch	k1% static N/mm	k1% static lbs/inch	k1% relaxed N/mm	k1% relaxed lbs/inch	Standard roll m	Standard roll ft	Recommended pretension	Order No.
 Fabric impression (FI)	UB	-30°C	PU65A	72 A	2,0	0,078	12	0,50	0,29	1,60	0,20	1,10	50	164	1-5%	FBFG750X20LA
	UB	-30°C	PU75A	80 A	1,6	0,062	15	0,60	0,34	2,00	0,24	1,40	50	164	1-5%	FBFI750X16LD
	UB	-30°C	PU75A	80 A	2,0	0,078	20	0,80	0,43	2,40	0,30	1,70	50	164	1-5%	FBFI750X20LB
	UB	-30°C	PU75A	80 A	3,0	0,118	30	1,18	0,64	3,70	0,45	2,60	50	164	1-5%	FBFI750X30LG
	UB	-30°C	PU75A	80 A	4,0	0,157	40	1,57	0,86	4,90	0,60	3,40	30	100	1-5%	FBFI750X40LC
 Smooth gloss (SG)	UB		PU95A	95 A	2,0	0,078	35	1,40	1,03	5,90	0,72	4,10	50	164	0,5-3%	FBFL750X20LC
	UB		PU95A	95 A	3,0	0,118	50	2,00	1,54	8,80	1,08	6,20	50	164	0,5-3%	FBFL750X30LC
 Smooth gloss (SG)	HI		PU95A	95 A	2,0	0,078	35	1,40	1,03	5,90	0,72	4,10	50	164	0,5-3%	FBFL750X20LG
	HI		PU95A	95 A	3,0	0,118	50	2,00	1,54	8,80	1,08	6,20	50	164	0,5-3%	FBFL750X30LG
 Diamond (ID)	UB	UV, MICRO CLEAN	PU80A	84 A	1,8	0,070	18	0,71	0,51	2,90	0,36	2,00	50	164	1-5%	FBFJ750X18LK
	UB	MICRO CLEAN	PU80A	84 A	2,0	0,078	20	0,80	0,57	3,30	0,40	2,30	50	164	1-5%	FBFJ750X2LA
	UB	MICRO CLEAN, -30°C	PU95A	95 A	2,0	0,078	35	1,40	0,98	5,60	0,68	3,90	50	164	0,5-3%	FBFM750X2LC
	UB	MICRO CLEAN, -30°C	PU95A	95 A	3,0	0,118	50	2,00	1,47	8,40	1,03	5,90	50	164	0,5-3%	FBFM750X3LC
 Diamond (ID)	HI	MICRO CLEAN, -30°C	PU95A	95 A	2,0	0,078	35	1,40	0,98	5,60	0,68	3,90	50	164	0,5-3%	FBFM750X2LD
	HI	MICRO CLEAN, -30°C	PU95A	95 A	3,0	0,118	50	2,00	1,47	8,40	1,03	5,90	50	164	0,5-3%	FBFM750X3LD
 Slightly rough (SR)	TR		PU80A	84 A	1,6	0,062	15	0,60	0,48	2,70	0,34	1,90	50	164	1-5%	FBFJ750X16T

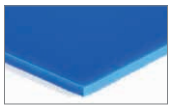


FDA EC MICRO CLEAN

TOP SIDE: LONGITUDINAL GROOVES (LGB)

Bottom side	Color	Additional Features	Quality	Hardness Shore	Belt thickness mm	Belt thickness inch	Recommended Min. pulley ∅ mm	Recommended Min. pulley ∅ inch	k1% static N/mm	k1% static lbs/inch	k1% relaxed N/mm	k1% relaxed lbs/inch	Standard roll m	Standard roll ft	Recommended pretension	Order No.
 Fabric impression (FI)	UB		PU80A	84 A	1,6	0,062	15	0,60	0,48	2,70	0,34	1,90	50	164	1-5%	FBFJ750X16LK

Conveyor belts 730

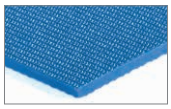


FDA EC · MICRO CLEAN

TOP SIDE: SMOOTH MAT (SM)

Bottom side	Color	Additional Features	Quality	Hardness Shore	Belt thickness mm	Belt thickness inch	Recommended Min. pulley ∅ mm	Recommended Min. pulley ∅ inch	k1% static N/mm	k1% static lbs/inch	k1% relaxed N/mm	k1% relaxed lbs/inch	Standard roll m	Standard roll ft	Recommended pretension	Order No.
 Diamond (ID)	UB	2K, UV, -30°C	PU65A PU75A	72 A 80 A	1,8	0,070	12	0,50	0,32	1,80	0,22	1,30	50	164	1-5%	FBFGI750X18L
	UB	2K, UV	PU65A PU80A	72 A 84 A	1,8	0,070	15	0,60	0,40	2,30	0,28	1,60	50	164	1-5%	FBFGJ750X18L
 Fabric impression (FI)	UB	-30°C	PU75A	80 A	1,0	0,039	10	0,40	0,21	1,20	0,15	0,90	50	164	1-5%	FBFI750X10LA
					1,6	0,062	15	0,60	0,34	2,00	0,24	1,40	50	164	1-5%	FBFI750X16LA
					2,0	0,078	20	0,80	0,43	2,40	0,30	1,70	50	164	1-5%	FBFI750X20LA
					3,0	0,118	30	1,20	0,64	3,70	0,45	2,60	50	164	1-5%	FBFI750X30LA
 Fabric impression (FI)	WE		PU75A	80 A	1,0	0,039	10	0,40	0,21	1,20	0,15	0,90	50	164	1-5%	FBFI750X10WA
					2,0	0,078	20	0,80	0,43	2,40	0,30	1,70	50	164	1-5%	FBFI750X20WA
 Fabric impression (FI)	UB		PU80A	84 A	1,0	0,039	10	0,40	0,30	1,70	0,21	1,20	50	164	1-5%	FBFJ750X1LE
					1,0	0,039	10	0,40	0,30	1,70	0,21	1,20	50	164	1-5%	FBFJ750X1LD
					1,6	0,062	15	0,60	0,48	2,70	0,34	1,90	50	164	1-5%	FBFJ750X16LD
					2,0	0,078	20	0,80	0,60	3,40	0,42	2,40	50	164	1-5%	FBFJ750X20LD
 Fabric impression (FI)	CB	METAL DETECT	PU80A SAFE	84 A	1,0	0,039	10	0,40	0,30	1,70	0,21	1,20	50	164	1-5%	FBFJ750X1LA
					1,6	0,062	15	0,60	0,48	2,70	0,34	1,90	50	164	1-5%	FBFJ750X16LE
					2,0	0,078	20	0,80	0,60	3,40	0,42	2,40	50	164	1-5%	FBFJ750X20LE
					3,0	0,118	30	1,20	0,90	5,10	0,63	3,60	50	164	1-5%	FBFJ750X30LE
 Fabric impression (FI)	UB	-30°C	PU95A	95 A	1,0	0,039	18	0,71	0,51	2,90	0,36	2,10	50	164	0,5-3%	FBFL750X10LA
					1,6	0,062	25	1,00	0,82	4,70	0,58	3,30	50	164	0,5-3%	FBFL750X16LA
					2,0	0,078	35	1,40	1,03	5,90	0,72	4,10	50	164	0,5-3%	FBFL750X20LA
					3,0	0,118	50	2,00	1,54	8,80	1,08	6,20	50	164	0,5-3%	FBFL750X30LA
					4,0	0,157	75	3,00	2,06	11,70	1,44	8,20	30	100	0,5-3%	FBFL750X40LA
 Fabric impression (FI)	WE	-30°C	PU95A	95 A	1,6	0,062	25	1,00	0,82	4,70	0,58	3,30	50	164	0,5-3%	FBFL750X16WA
					2,0	0,078	35	1,40	1,03	5,90	0,72	4,10	50	164	0,5-3%	FBFL750X20WA
					3,0	0,118	50	2,00	1,54	8,80	1,08	6,20	50	164	0,5-3%	FBFL750X30WA

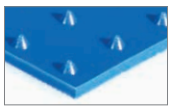
Conveyor belts 730



FDA EC

TOP SIDE: SLIGHTLY ROUGH (SR)

Bottom side	Color	Additional Features	Quality	Hardness Shore	Belt thickness mm	Belt thickness inch	Recommended Min. pulley ∅ mm	Recommended Min. pulley ∅ inch	k1% static N/mm	k1% static lbs/inch	k1% relaxed N/mm	k1% relaxed lbs/inch	Standard roll m	Standard roll ft	Recommended pretension	Order No.
 Diamond (ID)		MICRO CLEAN, UV, -30°C	PU75A	80 A	1,6	0,062	13	0,52	0,33	1,9	0,23	1,30	50	164	1-5%	FBFI750X16LI
	UB	MICRO CLEAN	PU80A	84 A	1,0	0,039	10	0,40	0,29	1,60	0,20	1,10	50	164	1-5%	FBFJ750X10LK
		MICRO CLEAN, UV			1,2	0,047	12	0,47	0,34	2,00	0,24	1,40	50	164	1-5%	FBFJ750X12LJ
					1,8	0,070	18	0,71	0,51	2,90	0,36	2,00	50	164	1-5%	FBFJ750X18LJ
 Fabric impression (FI)			PU80A	84 A	1,0	0,039	10	0,40	0,30	1,70	0,21	1,20	50	164	1-5%	FBFJ750X10L
					1,2	0,047	10	0,40	0,36	2,10	0,25	1,40	50	164	1-5%	FBFJ750X12L
					1,6	0,062	15	0,60	0,48	2,70	0,34	1,90	50	164	1-5%	FBFJ750X16L
	UB				2,0	0,078	20	0,80	0,60	3,40	0,42	2,40	50	164	1-5%	FBFJ750X20L
			PU80A	84 A	0,9	0,035	8	0,31	0,24	1,40	0,17	1,00	50	164	1-5%	FBFJ750X09LA
					1,2	0,047	10	0,40	0,33	1,90	0,23	1,30	50	164	1-5%	FBFJ750X12LA
					1,6	0,062	15	0,60	0,43	2,50	0,30	1,70	50	164	1-5%	FBFJ750X16LA

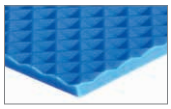


FDA EC

TOP SIDE: SPIKES (SP)

Bottom side	Color	Additional Features	Quality	Hardness Shore	Belt thickness mm	Belt thickness inch	Recommended Min. pulley ∅ mm	Recommended Min. pulley ∅ inch	k1% static N/mm	k1% static lbs/inch	k1% relaxed N/mm	k1% relaxed lbs/inch	Standard roll m	Standard roll ft	Recommended pretension	Order No.
 Diamond (ID)	UB	UV, MICRO CLEAN	PU80	84 A	2,0	0,078	20	0,80	0,57	3,30	0,40	2,30	50	164	1-5%	FBFJ750X20LI
 Fabric impression (FI)			PU80A	84 A	1,2	0,047	12	0,47	0,36	2,10	0,25	1,40	50	164	1-5%	FBFJ750X12LG
					2,0	0,078	25	1,00	0,60	3,40	0,42	2,40	50	164	1-5%	FBFJ750X2LG
	UB		PU95A	95 A	2,0	0,078	40	1,57	1,03	5,90	0,72	4,10	50	164	0,5-3%	FBFM750X2LA
		-30°C			2,5	0,098	45	1,80	1,29	7,30	0,90	5,10	50	164	0,5-3%	FBFM750X25LD
					3,0	0,118	55	2,20	1,54	8,80	1,08	6,20	50	164	0,5-3%	FBFM750X3LA

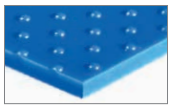
Conveyor belts 730



FDA EC · MICRO CLEAN

TOP SIDE: DIAMOND (ID)

Bottom side	Color	Additional Features	Quality	Hardness Shore	Belt thickness mm	Belt thickness inch	Recommended Min. pulley ∅ mm	Recommended Min. pulley ∅ inch	k1% static N/mm	k1% static lbs/inch	k1% relaxed N/mm	k1% relaxed lbs/inch	Standard roll m	Standard roll ft	Recommended pretension	Order No.
 Diamond (ID)	UB	UV · MICRO CLEAN · -30°C	PU65A	72 A	2,2	0,086	15	0,60	0,28	1,60	0,20	1,10	50	164	1-5%	FBFGG750X22L
	UB	MICRO CLEAN	PU80A	84 A	2,2	0,086	22	0,87	0,60	3,40	0,42	2,40	50	164	1-5%	FBFJ750X22LO
	UB	2K · UV · MICRO CLEAN	PU65A PU80A	72 A 84 A	2,2	0,086	18	0,71	0,44	2,50	0,31	1,80	50	164	1-5%	FBFJG750X22L
 Slightly rough (SR)	UB		PU80A	84 A	1,0	0,039	10	0,40	0,29	1,60	0,20	1,10	50	164	1-5%	FBFJ750X10LK
	UB	UV	PU80A	84 A	1,2	0,047	12	0,47	0,34	2,00	0,24	1,40	50	164	1-5%	FBFJ750X12LJ
	UB	UV	PU80A	84 A	1,8	0,070	18	0,71	0,51	2,90	0,36	2,00	50	164	1-5%	FBFJ750X18LJ
 Fabric impression (FI)	CB	METAL DETECTABLE	PU80A	84 A	1,6	0,062	15	0,60	0,46	2,60	0,32	1,80	50	164	1-5%	FBFJ750X16LC
	UB		PU80A	84 A	1,6	0,062	15	0,60	0,46	2,60	0,32	1,80	50	164	1-5%	FBFJ750X16LL
	UB		PU80A	84 A	2,0	0,078	20	0,80	0,57	3,30	0,40	2,30	50	164	1-5%	FBFJ750X2LB
	UB		PU95A	95 A	1,6	0,062	25	1,00	0,78	4,50	0,55	3,10	50	164	0,5-3%	FBFM750X16LH
	UB		PU95A	95 A	2,0	0,078	35	1,38	0,98	5,60	0,68	3,90	50	164	0,5-3%	FBFM750X2LH
	UB		PU95A	95 A	2,5	0,098	40	1,58	1,22	7,00	0,86	4,90	50	164	0,5-3%	FBFM750X25LH
	UB		PU95A	95 A	3,0	0,118	50	1,97	1,47	8,40	1,03	5,90	50	164	0,5-3%	FBFM750X3LH

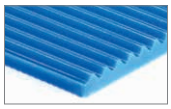


FDA EC · MICRO CLEAN

TOP SIDE: NUB TOP (NP)

Bottom side	Color	Additional Features	Quality	Hardness Shore	Belt thickness mm	Belt thickness inch	Recommended Min. pulley ∅ mm	Recommended Min. pulley ∅ inch	k1% static N/mm	k1% static lbs/inch	k1% relaxed N/mm	k1% relaxed lbs/inch	Standard roll m	Standard roll ft	Recommended pretension	Order No.
 Fabric impression (FI)	UB	-30°C	PU65A	72 A	2,0	0,078	15	0,60	0,29	1,60	0,20	1,10	50	164	1-5%	FBFG750X2LB
	UB		PU80A	84 A	1,6	0,062	15	0,60	0,48	2,70	0,34	1,90	50	164	1-5%	FBFJ750X16LF
	UB		PU80A	84 A	2,0	0,078	20	0,80	0,60	3,40	0,42	2,40	50	164	1-5%	FBFJ750X20LF
	UB		PU95A	95 A	1,6	0,062	25	1,00	0,82	4,78	0,57	3,33	50	164	0,5-3%	FBFM750X16LB
	UB		PU95A	95 A	2,0	0,078	35	1,38	1,03	5,90	0,72	4,10	50	164	0,5-3%	FBFM750X2LB

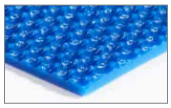
Conveyor belts 730



FDA EC · MICRO CLEAN

TOP SIDE: TRANSVERSAL GROOVES (TGA)

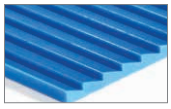
Bottom side	Color	Additional Features	Quality	Hardness Shore	Belt thickness mm	Belt thickness inch	Recommended Min. pulley ∅ mm	Recommended Min. pulley ∅ inch	k1% static N/mm	k1% static lbs/inch	k1% relaxed N/mm	k1% relaxed lbs/inch	Standard roll m	Standard roll ft	Recommended pretension	Order No.
 Diamond (ID)	UB	UV	PU80A	84 A	2,8	0,110	25	1,00	0,57	3,30	0,40	2,30	50	164	1-5%	FBFJ750X28LP
 Fabric impression (FI)	UB		PU80A	84 A	2,5	0,098	20	0,80	0,51	2,90	0,36	2,00	50	164	1-5%	FBFJ750X25LL
	UB		PU95A	95 A	2,5	0,098	40	1,57	0,87	5,00	0,61	3,50	50	164	0,5-3%	FBFM750X25LB
	UB		PU95A	95 A	3,5	0,137	55	2,17	1,39	7,90	0,97	5,50	50	164	0,5-3%	FBFM750X35LI



FDA EC

TOP SIDE: ROUGH IMPRESSION (RI)

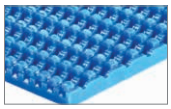
Bottom side	Color	Additional Features	Quality	Hardness Shore	Belt thickness mm	Belt thickness inch	Recommended Min. pulley ∅ mm	Recommended Min. pulley ∅ inch	k1% static N/mm	k1% static lbs/inch	k1% relaxed N/mm	k1% relaxed lbs/inch	Standard roll m	Standard roll ft	Recommended pretension	Order No.
 Smooth mat (SM)	UB	MICRO CLEAN	PU65A	72 A	3,0	0,118	18	0,71	0,36	2,00	0,25	1,40	50	164	1-5%	FBFG750X30LA
 Diamond (ID)	UB	MICRO CLEAN -30°C	PU75A	80 A	2,0	0,078	20	0,80	0,31	1,70	0,21	1,20	50	164	1-5%	FBFI750X20LC
	UB	MICRO CLEAN -30°C	PU75A	80 A	3,0	0,118	30	1,20	0,51	2,90	0,36	2,00	50	164	1-5%	FBFI750X30LC



FDA EC

TOP SIDE: SAW TOOTH (EST)

Bottom side	Color	Additional Features	Quality	Hardness Shore	Belt thickness mm	Belt thickness inch	Recommended Min. pulley ∅ mm	Recommended Min. pulley ∅ inch	k1% static N/mm	k1% static lbs/inch	k1% relaxed N/mm	k1% relaxed lbs/inch	Standard roll m	Standard roll ft	Recommended pretension	Order No.
 Slightly rough (SR)	UB	-30°C	PU75A	80 A	3,0	0,118	20	0,79	0,32	1,86	0,23	1,33	25	82	1-5%	FBFI750X30LB
	UB	-30°C	PU75A	80 A	4,0	0,157	30	1,18	0,54	3,13	0,38	2,20	25	82	1-5%	FBFI750X40LB



FDA EC

TOP SIDE: SUPERGRIP (ESG)

Bottom side	Color	Additional Features	Quality	Hardness Shore	Belt thickness mm	Belt thickness inch	Recommended Min. pulley ∅ mm	Recommended Min. pulley ∅ inch	k1% static N/mm	k1% static lbs/inch	k1% relaxed N/mm	k1% relaxed lbs/inch	Standard roll m	Standard roll ft	Recommended pretension	Order No.
 Slightly rough (SR)	UB	-30°C	PU75A	80 A	4,0	0,157	35	1,38	0,58	3,36	0,41	2,38	25	82	1-5%	FBFI750X40LA

Machine tapes

BEHAbelt is expanding its diverse belt portfolio with the addition of elastic machine tapes made of TPU. Machine tapes have been established on the market for many years and are often offered in green/black or blue/black with antistatic properties.

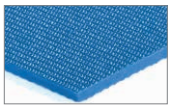
In addition to reinforced belt constructions, elastic versions are also used to adapt to application requirements.

INDUSTRIES / APPLICATIONS

- Packaging and weighing technology
- Intralogistics (mainly distribution belts)
- Enveloping and franking systems
- Printing, paper industry
- Textile industry
- Blue types are suitable for direct contact with food
- Alternative for vertical shaft drives

ADVANTAGES / FEATURES

- Consistent longitudinal flexibility (due to homogeneous belt connection without gluing, design as transverse splice possible)
- Reduced energy consumption due to high longitudinal flexibility and thus also gentle motor and shaft loads
- Excellent bending properties and thus ideally suited for small pulley diameters
- High abrasion resistance and generally good chemical resistance
- Continuous antistatic belt designs offer dissipation properties for antistatic charges on the upper and lower side of the belt.



FDA
EC

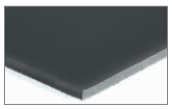
TOP SIDE: SLIGHTLY ROUGH (SR)

Bottom side	Color	Additional Features	Quality	Hardness Shore	Belt thickness mm	Belt thickness inch	Recommended Min. pulley ∅ mm	Recommended Min. pulley ∅ inch	k1% static N/mm	k1% static lbs/inch	k1% relaxed N/mm	k1% relaxed lbs/inch	Standard roll m	Standard roll ft	Recommended pretension	Order No.
 Fabric impression (FI)	UB		PU80A	84 A	1,0	0,039	10	0,40	0,30	1,70	0,21	1,20	50	164	1-5%	FBFJ750X10L
					1,2	0,047	10	0,40	0,36	2,10	0,25	1,40	50	164	1-5%	FBFJ750X12L
					1,6	0,062	15	0,60	0,48	2,70	0,34	1,90	50	164	1-5%	FBFJ750X16L
					2,0	0,078	20	0,80	0,60	3,40	0,42	2,40	50	164	1-5%	FBFJ750X20L
		2K	PU80A PU65A	84 A 72 A	1,8	0,070	15	0,60	0,41	2,40	0,29	1,70	50	164	1-5%	FBFJG750X18L
			PU80A	84 A	0,9	0,035	8	0,31	0,24	1,40	0,17	1,00	50	164	1-5%	FBFJ750X09LA
					1,2	0,047	10	0,40	0,33	1,90	0,23	1,30	50	164	1-5%	FBFJ750X12LA
					1,6	0,062	15	0,60	0,43	2,50	0,30	1,70	50	164	1-5%	FBFJ750X16LA
		-30°C	PU55D	55 D	1,1	0,039	15	0,60	0,71	4,00	0,50	2,80	50	164	0,5-3%	FBFN750X11L
					1,5	0,059	25	1,0	1,07	6,10	0,75	4,30	50	164	0,5-3%	FBFN750X15L
		2K -30°C	PU55D PU65A	55 D 72 A	1,9	0,074	25	1,0	0,90	5,10	0,63	3,60	50	164	0,5-3%	FBFNG750X19L
 Fabric impression (FI)	SW		PU80A	84 A	1,2	0,047	10	0,40	0,32	1,80	0,23	1,30	50	164	1-5%	FBFJ750X12SB
					1,6	0,062	15	0,60	0,43	2,50	0,30	1,70	50	164	1-5%	FBFJ750X16SB
		2K	PU80A PU65A	84 A 72 A	2,0	0,078	15	0,60	0,40	2,30	0,28	1,60	50	164	1-5%	FBFJG750X2S
		-30°C	PU55D	55 D	1,1	0,039	15	0,60	0,71	4,00	0,50	2,80	50	164	0,5-3%	FBFN750X11S
					1,5	0,059	25	1,0	0,96	5,50	0,68	3,90	50	164	0,5-3%	FBFN750X15S
		2K -30°C	PU55D PU65A	55 D 72 A	1,9	0,074	25	1,0	0,82	4,70	0,58	3,30	50	164	0,5-3%	FBFNG750X19S

Conveyor belts for intralogistics

Elastic belts in intralogistics reduce the costs of system design, as tensioning stations are largely unnecessary. Depending on the type and kind of material to be conveyed (e.g. accumulation conveyors, incline conveyors), a wide variety of belt types are required.

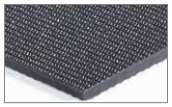
Thanks to BEHAbelt's 2C process, two different degrees of hardness can be combined in one belt, for example to provide the transport side with more grip for an incline conveyor.



FDA EC

TOP SIDE: SMOOTH MAT (SM)

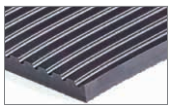
Bottom side	Color	Quality	Hardness	Belt thickness		Recommended Min. pulley ∅		k1% static		k1% relaxed		Standard roll		Empf. Vorspannung	Order No.
			Shore	mm	inch	mm	inch	N/mm	lbs/inch	N/mm	lbs/inch	m	ft		
 Fabric impression (FI)	SW	PU75A	80 A	1,6	0,062	15	0,60	0,34	2,00	0,24	1,40	50	164	1-5%	FBFI750X16SB



FDA EC

TOP SIDE: SLIGHTLY ROUGH (SR)

Bottom side	Color	Quality	Hardness	Belt thickness		Recommended Min. pulley ∅		k1% static		k1% relaxed		Standard roll		Recommended pretension	Order No.
			Shore	mm	inch	mm	inch	N/mm	lbs/inch	N/mm	lbs/inch	m	ft		
 Fabric impression (FI)		PU80A	84 A	1,2	0,047	10	0,40	0,32	1,80	0,23	1,30	50	164	1-5%	FBFJ750X12SB
				1,6	0,062	15	0,60	0,43	2,50	0,30	1,70	50	164	1-5%	FBFJ750X16SB
	SW	PU80A PU65A	84 A 72 A	2,0	0,078	18	0,71	0,40	2,30	0,28	1,60	50	164	1-5%	FBFJG750X2S
		PU55D PU65A	55 D 72 A	1,9	0,074	25	1,0	0,82	4,70	0,58	3,30	50	164	0,5-3%	FBFNG750X19S

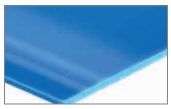


FDA EC

TOP SIDE: LONGITUDINAL GROOVES (LGB)

Bottom side	Color	Quality	Hardness	Belt thickness		Recommended Min. pulley ∅		k1% static		k1% relaxed		Standard roll		Recommended pretension	Order No.
			Shore	mm	inch	mm	inch	N/mm	lbs/inch	N/mm	lbs/inch	m	ft		
 Fabric impression (FI)	SW	PU80A PU65A	84 A 72 A	2,2	0,086	18	0,71	0,47	2,70	0,33	1,90	50	164	1-5%	FBFGJ750X22S

Conveyor belts up to 140 mm



TOP SIDE: SMOOTH GLOSS (SG) // 140 mm

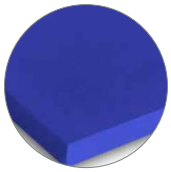
Bottom side	Color	Additional Features	Quality	Hard-ness	Belt thickness		Recommended Min. pulley ∅		k1% static		k1% relaxed		Standard roll		Recom-mended pretension	Order No.
				Shore	mm	inch	mm	inch	N/mm	lbs/inch	N/mm	lbs/inch	m	ft		
 Smooth gloss (SG)	HI	FDA EC, -30°C	PU75A	80 A	1,0	0,039	10	0,4	0,21	1,20	0,15	1,90	50	164	1-5%	FBFI150X1LG
					1,6	0,062	15	0,6	0,34	2,00	0,24	1,40	50	164	1-5%	FBFI150X16LG
					2,0	0,078	20	0,8	0,43	2,40	0,30	1,70	50	164	1-5%	FBFI150X2LG
					3,0	0,118	25	1,0	0,64	3,70	0,45	2,60	50	164	1-5%	FBFI150X3LG
					4,0	0,157	35	1,4	0,86	4,90	0,60	3,40	50	164	1-5%	FBFI150X4LG
 Smooth gloss (SG)	CB	FDA EC, METAL, X-RAY	PU80A SAFE	84 A	1,6	0,062	15	0,6	0,48	2,78	0,34	1,97	50	164	1-5%	FBFJ15016LGM
					2,0	0,078	20	0,8	0,60	3,40	0,42	2,40	50	164	1-5%	FBFJ150X2LGM
					3,0	0,118	30	1,2	0,90	5,10	0,63	3,60	50	164	1-5%	FBFJ150X3LGM
 Smooth gloss (SG)	OR	FDA EC	PU80A	84 A	1,6	0,062	15	0,6	0,30	1,70	0,21	1,20	30	100	1-5%	FBFJ150X16OG
					2,4	0,094	25	1,0	0,72	4,10	0,50	2,90	30	100	1-5%	FBFJ150X24OG
					3,2	0,125	30	1,2	0,96	5,50	0,67	3,80	30	100	1-5%	FBFJ150X32OG
 Smooth gloss (SG)	GR		PU85A	88 A	1,6	0,062	20	0,8	0,50	2,90	0,40	2,30	50	164	1-5%	FBFK150X16GG
					2,0	0,078	30	1,2	0,63	3,60	0,50	2,90	50	164	1-5%	FBFK150X2GG
					3,0	0,118	35	1,4	0,94	5,30	0,75	4,30	50	164	1-5%	FBFK150X3GG
					4,0	0,157	45	1,8	1,25	7,10	1,00	5,70	50	164	1-5%	FBFK150X4GG

PU sheet goods

BEHAbelt offers PU plate goods from 4-8 mm in 2 categories:

- blue FDA compliant versions with smooth surfaces in Shore 84A and 95A
- industrial quality with smooth/fabric impressed surfaces in Shore 84A

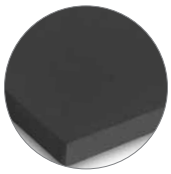
Typical applications include: welded profiles (cleats), scrapers, aprons, impact protection, tensioning straps or seals.



TOP SIDE: SMOOTH MAT (SM)

FDA EC | MICRO CLEAN

Bottom side	Color	Additional Features	Quality	Hardness	Belt thickness		Weight* per pc.	Sheet length		Min. pulley ∅		Order No.
				Shore	mm	inch	ca. kg	m	ft	horizontal	vertical	
 Smooth mat (SM)	UB	FDA EC	PU80A	84 A	4,0	0,16	4,3	1,2	4,0	40	55	FBPJ12754L
					5,0	0,20	5,4	1,2	4,0	50	70	FBPJ12755L
					6,0	0,24	6,5	1,2	4,0	60	80	FBPJ12756L
					8,0	0,31	8,6	1,2	4,0	80	100	FBPJ12758L
	UB	FDA EC	PU95A	95 A	4,0	0,16	4,3	1,2	4,0	70	80	FBPM12754L
					5,0	0,20	5,4	1,2	4,0	90	105	FBPM12755L
					6,0	0,24	6,5	1,2	4,0	105	120	FBPM12756L
					8,0	0,31	8,6	1,2	4,0	140	150	FBPM12758L



TOP SIDE: SMOOTH MAT (SM)

Bottom side	Color	Additional Features	Quality	Hardness	Belt thickness		Weight* per pc.	Sheet length		Min. pulley ∅		Order No.
				Shore	mm	inch	ca. kg	m	ft	horizontal	vertical	
 Fabric impression (FI)	SW		PU80A	84 A	4,0	0,16	4,3	1,2	4,0	40	55	FBPJ12754S
					5,0	0,20	5,4	1,2	4,0	50	70	FBPJ12755S
					6,0	0,24	6,5	1,2	4,0	60	80	FBPJ12756S
					8,0	0,31	8,6	1,2	4,0	80	100	FBPJ12758S
 Smooth mat (SM)	WE	FDA EC	PU80A	84 A	5,0	0,20	5,4	1,2	4,0	50	70	FBPJ12755W
					8,0	0,31	8,6	1,2	4,0	80	100	FBPJ12758W

APPLICATION EXAMPLES

Buffer protection in the pellet depot

Cleats on conveyor belt

Work skirt e.g. in wood industry

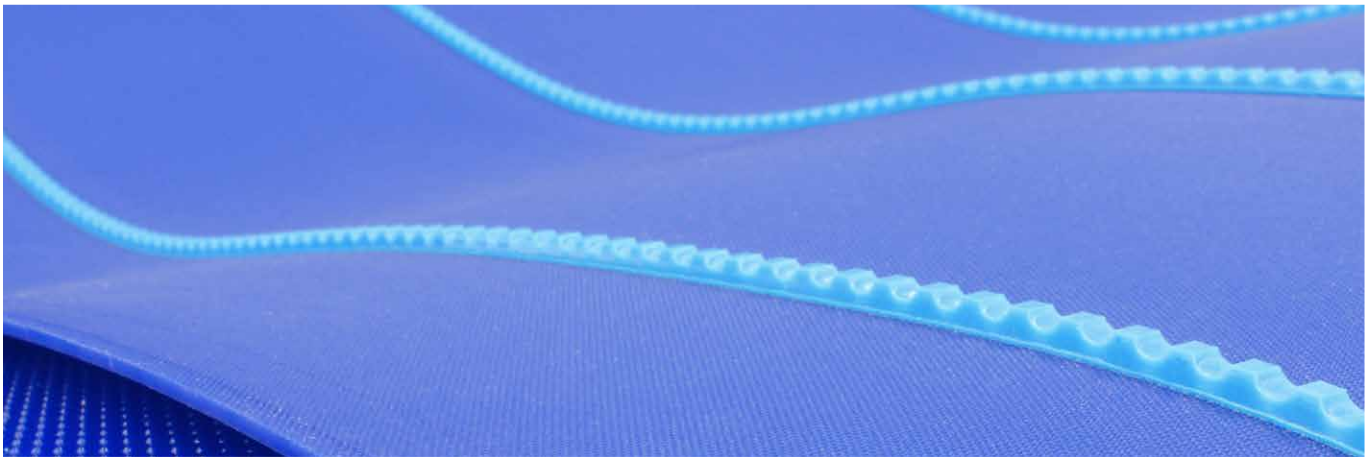
* Sheet width 750 mm(-20mm for calendered edge); other sheet lengths are available on request.

Weldable accessories for conveyor belts

There is a wide field of applications for synthetic conveyor belts. Depending on the industry, the products to be conveyed and the given machinery design, conveyor belts not only have to be fabricated to specific dimensions (length and width), often they are also equipped with cleats, sidewalls or tracking elements. BEHAbelt offers a wide range of flat belt accessories, homogeneously extruded from PU in different Shore hardness grades.

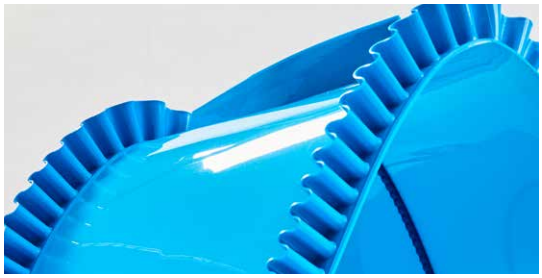
Our flat belt accessories consist of the same raw materials as the conveyor belts to ensure the best possible weldability and a long service life in the application.

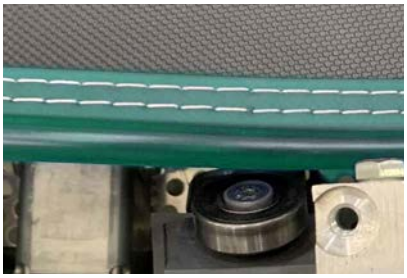
Of course, the BEHAbelt flat belt accessories are also available with FDA/EC/USDA compliance on request and can further be offered with special features such as detectable, UV-C resistance or hydrolysis resistance.

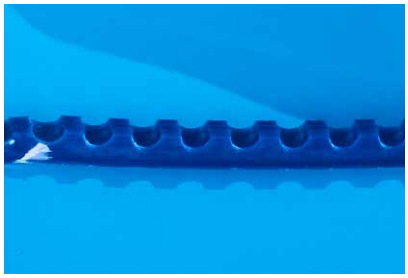


THE BEHABELT FLAT BELT ACCESSORY PORTFOLIO CONTAINS:

- Cleats with foot (height 20 - 70 mm)
- Cleats without foot (sheet materials)
- V-guides and guiding profiles (notched/unnotched)
- Sidewalls (with and without foot; height 20 - 120 mm)
- Belt edges
- Customized profiles







INDUSTRIES AND APPLICATIONS

Synthetic conveyor belts are often fabricated with accessories. Such special customization is often an important basis for a reliable performance in the target application. Tailored conveyor belts with cleats, sidewalls or guiding profiles are used to for example used to move light- and medium weighed goods in the food industry, logistics and material handling. In this context, weldable accessories are key elements to ensure the functionality of the belts.

CONVEYOR BELT ACCESSORIES	FIELD OF APPLICATION
Cleats	To hold and move bulk or light-/medium weight goods on inclined or declined conveyors.
Corrugated sidewalls	Are often combined with cleats to avoid that conveyed goods are falling down.
V-guides and guiding profiles	Can be applied on the conveying side instead of sidewalls to avoid that goods are falling down. Often used as guiding profile on the running side to support belt tracking or compensate lateral forces if goods are loaded on the belt from the side, usually handed over from another conveyor.
Belt edges	Enable tailored fabrication and optimal guiding of powerturn/curve belts.

Welding tools for conveyor belts

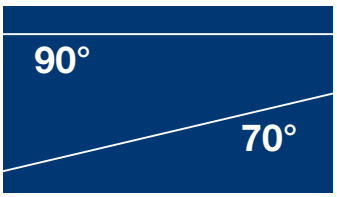
BEHAbelt has developed the **HS400** and **HS800** heating units specifically for the butt splice welding of conveyor belts.
We have worked intensively on the workflows and technical requirements for these welding processes to design the press.
In addition, the focus was on repeatability and precision.

HS400 & HS800

Robust and easy-to-use control unit for temperature control

Tutorial-Video „HS400/800“

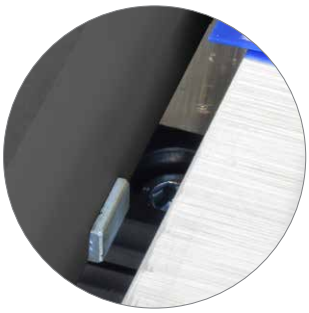
Angle for straight (90°) and bias (70°) cutting of the belts directly in the welding unit (included in the scope of delivery)



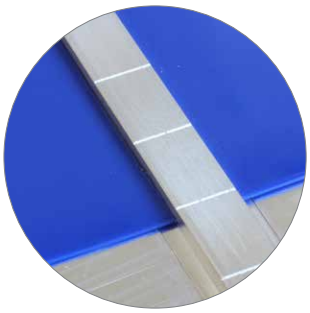
Straight weld at 90° and angle weld at 70° (e.g. for conveyor belts)

WELDING TOOL FOR BUTT SPLICE OF CONVEYOR BELTS

- HS400 for welding up to 400 mm belt width
- HS800 for welding up to 800 mm belt width
- Sophisticated design with positioning aids and stops ensures high repeat accuracy in the welding processes
- Clamping lever with locking device
- Robust and handy design of the individual components
- Exact temperature adjustment via control unit
- No adhesion of PU or TPE material due to Teflon-coated heating paddle
- Easy cleaning of the heating blade with a cotton cloth
- Welding unit delivered in a mobile, stable transport box for easy use on site

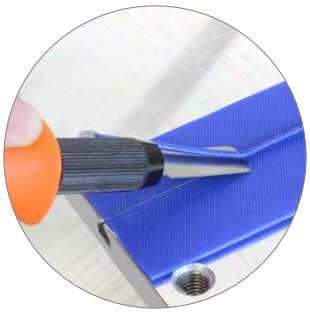


Insert bar for repeatable welds



Enables precise and aligned insertion of the belt ends (70° and 90°)

Bevelled clamping bars for optimum formation of the welding bead

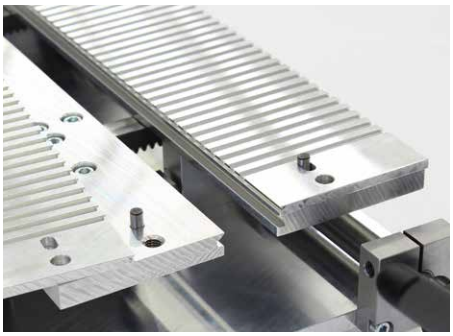


Easy removal of the welding bead with the supplied tool

Adapter plates for HS400 & HS800

Optional adapter plates for more complex belt structures are available for the optimum alignment and clamping of the belts to be welded in the joining table (not included in the standard scope of delivery).

Currently available: Spike, AT5, Cleandrive 2, Superdrive V and Thermodrive 2



Locking pins ensure the correct positioning of the adapter plates on the joining table

EErgo 90 for flat belt stripes < 80 mm

BEHAbelt EErgo 90 has been specially developed for welding PU and TPE flat belt strips.
The operation is self-explanatory and the ergonomic design supports the working process.

WELDING PADDLE FOR BUTT SPLICE OF FLAT BELT STRIPES AND PROFILES

- EErgo 90 for welding flat belt stripes up to a width of 80 mm
- Very fast heating time of approx. 5 minutes
- Strong, fiberglass-reinforced ergonomic housing
- Easy to use temperature selector regulates correct temperature to weld PU or TPE profiles
- Constant welding temperature at different ambient temperature
- No adhesion of PU and TPE materials, thanks to Teflon-coated welding paddle
- Easy cleaning with cloth

Intuitive operation with only 2 buttons

Suitable guide clamp for welding flat belt stripes up to a width of 80mm

Tutorial-Video „EErgo“

Quick guide for belt calculation

The following three formulas provide information on the most important parameters for the design of a conveyor belt. With the help of these formulas, you can quickly and easily determine the pretension force, axle load and theoretical max. transport weight.
Of course, our experienced technical team will be happy to assist you. We look forward to your enquiry.
Phone: +49 7684 907 0

SUPPORT (INFLUENCING VARIABLES)

Which variables influence the values to be calculated?

Preload/axle load:

▲ Increase pretension

+	more power transmission
+	less slip
-	increased axle and bearing load
-	increased Amp draw (motor)

▼ Reduce pretension

+	less axle and bearing load
+	less power consumption (motor)
-	increased slip/abrasion
-	Belt tracking and alignment not guaranteed

k1% (Belt thickness and/or hardness)

▲ Increase k1%

+	higher transport weight
+	mechanically more robust
-	greater redirection
-	increased axle and bearing load
-	increased pretensioning force; Belt tensioner may be necessary

▼ Reduce k1%

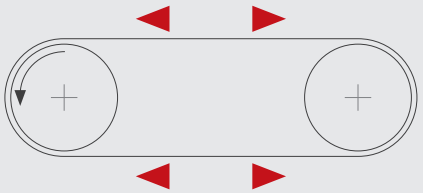
+	smaller redirection
+	lower axle and bearing load
-	reduced transport weight
-	mechanically more susceptible

Reduce coefficient of friction (µ)

- ▶ Compared to steel, HDPE or PE substrates offer significantly lower friction resistance
- ▶ Friction - optimized belt surfaces (e.g. rough, diamond, etc.) also reduce the coefficient of friction due to their smaller contact area

PRETENSION FORCE (N)

$k1\%_{stat.}$ (N/mm) x belt width (mm) x pretension (%) x 2

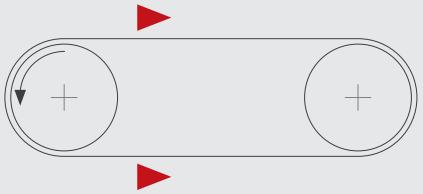


How much force (F) must be applied to pre-tension the belt?

What values are needed for this?

AXLE LOAD (N)

$k1\%_{stat.}$ (N/mm) x belt width (mm) x pretension (%) x 2

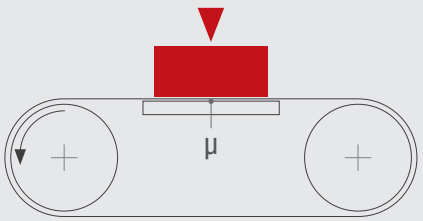


How much force (F) is applied to the axles due to the belt dimension?

How can the axle load be influenced (pretension, strength of the belt, hardness)?

MAX. TRANSPORT WEIGHT (KG)

$k1\%_{relax.}$ (N/mm) x belt width (mm) x pretension (%) x 0,1 / coefficient of friction (µ)



How much weight (kg) can be transported?

What is needed to calculate this?

LEGEND

K1% (N/mm): Modulus of elasticity of the respective conveyor belt (elasticity constant). This value indicates how much force (N) per unit of belt width (mm) is required to stretch a belt by 1 %.

Coefficient of friction (µ): Sliding coefficient of friction (in motion) between belt surface and contact surface of the belt support.

Belt width (mm): Functional width of the conveyor belt.

Pretension (%): Selected belt pretension of the elastic monolithic belts to create a frictional connection (force transmission without slip) between belt and drive element.

Explanations of the various influencing variables for belt design

Elasticity modulus k1%

Based on the ISO 21181 standard, the k1% value (N/mm) defines the modulus of elasticity for conveyor belts. It shows how much force in Newtons per unit of belt width (mm) is required to stretch a belt by 1%.

In other words, how much (in %) must a belt be stretched to achieve a certain force on the drive drum.

In practice, two different k1% values (k1% static, relaxed) are used.

The static value acts immediately when the belt is mounted and thus represents the elasticity behaviour of the belt before it is used and before the usual running-in of the belt. The relaxed value represents the stabilised change in the elasticity behaviour after the belt has been run in (according to the 24h standard).

This also results in the respective use of the two k1% values: Whereas the static value is relevant for the calculation of pre-tensioning forces and bearing loads, the relaxed value is used for the calculation of the max. transport weight or the max. force transmission.

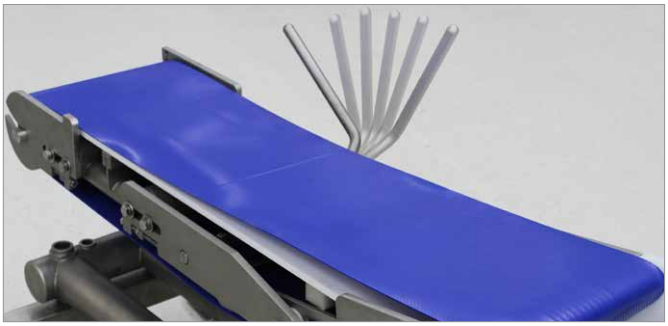
Coefficient of friction (μ)

The coefficient of friction is indicated with the formula symbol "μ" and serves as a measure of how high the frictional force acts between two materials (sliding friction). However, this always serves only as an approximate indication. The friction force depends on many different factors and is often influenced and changed during the operation of the installation due to changing environmental conditions.

The effect of the briefly acting higher coefficient of friction during start-up (is approx. 1.3 to 1.8 times the dynamic coefficient of friction) is usually taken into account in the system design via the safety factor selected by the designer.

Pretension (%)

For the trouble-free running of elastic monolithic belts, a correct and sufficient pretension is required to ensure the transmission of force without slippage. The pretension must be adjusted according to the technical task and to possible influences (temperature, contamination, ambient humidity, etc.).



For drives without a tensioning option, the correct pretensioning must be taken into account during production by shortening the belt length.

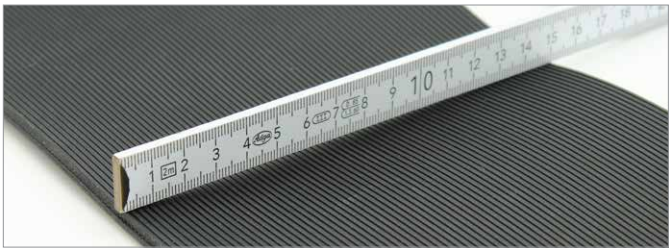
The belt tension is directly related to the running behavior. If the tension is too high, the running behaviour will be unstable and machine components such as bearings and shafts will be subjected to high stress. Too little tension leads to slippage and abrasion on the drive pulley and possibly also to the loss of the belt centring function with crowned rollers.

Due to the already described shrinkage of the belt – represented by the values $k1\%_{stat}$ and $k1\%_{relax}$ – the belt pretension is reduced to the same extent and may have to be retensioned accordingly or, if not possible during assembly, designed to be larger.

Since this is an elastic monolithic belt construction, the pretension of the belt can only be increased to a limited extent. Otherwise, a permanent deformation and thus a belt elongation will be caused. This max. belt pretension is specified by the manufacturer in the data sheet and represents the elastic working range of the conveyor belt.

Belt width (mm)

The belt width is proportional to the force required to stretch the belt. The wider a belt, the greater the force required to stretch the belt, i.e. wider belts generally require smaller pretension values (%) than narrower belts.



Introduction guiding concept for AT5

The interaction of AT5 drive with optimal belt guidance ensures track stability and slip-free drive. The preferred design for the belt guide takes into account a combination of guide groove in the belt and guide bar for the pulleys.

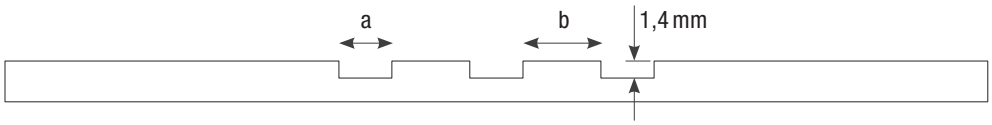
The position and number of guide grooves can be adapted to the requirements and conditions of the conveyor.

Several guide grooves basically increase the guide stability of the belt, whereby the arrangement of the guide grooves should preferably be centered in the middle of the belt and in the inner third of the belt width. Guide grooves near the outer edges of the belt are not recommended.

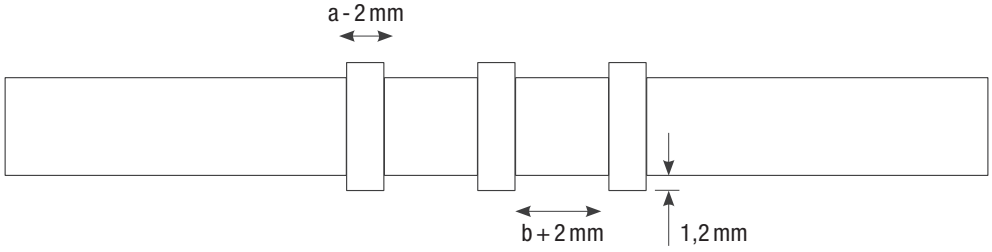
For cost reasons but also to simplify the implementation of the belt guiding concept, usually only the non-driven belt pulleys are designed as smooth rollers with guide bars, while the AT5 drive usually does without guide elements.

Typical design versions of the guide grooves in the belt are, for example, a groove width of 5 mm with a bar width of 15 mm between the grooves or a 10 mm groove with a bar width between the grooves of 20 mm. Depending on the belt width used, we recommend one to three guide grooves up to a belt width of 300 mm and three to seven guide grooves from a belt width > 300 mm. In case of possible transverse loads on the belt, it is better to increase the number of guide grooves.

DESIGN OF THE GUIDE GROOVES IN THE CONVEYOR BELT



DESIGN OF THE GUIDE BARS ON THE PULLEY



COEFFICIENT OF FRICTION μ_{dyn} FOR FLAT BELT SURFACES ON STEEL (DRY)

Quality	smooth gloss (SG)	smooth mat (SM)	fabric impression (FI)	rough impression (RI)	diamond (ID)	slightly rough (SR)
PU40A	1,50	1,40	1,35	1,40	1,30	1,35
PU60A	1,00	0,90	0,85	0,90	0,80	0,85
PU65A	0,85	0,80	0,70	0,75	0,65	0,70
PU75A	0,70	0,65	0,55	0,50	0,50	0,55
PU80A	0,65	0,60	0,50	0,40	0,45	0,50
PU85A	0,60	0,55	0,45	0,35	0,40	0,45
PU90A	0,65	0,60	0,50	0,40	0,45	0,50
PU95A	0,45	0,40	0,30	0,20	0,25	0,30
PU55D	0,35	0,30	0,25	0,15	0,20	0,25
TPE40D	0,45	0,40	0,30	0,20	0,25	0,30
TPE55D	0,35	0,30	0,25	0,15	0,20	0,25

Please consider a coefficient of friction of μ = 0.15 for a roller conveyor support.

INSTALLATION, PULLEY DIAMETER, CENTER DISTANCE RELATED TO SHORE HARDNESS

Minimum pulley diameter range	
Shore 72A / 80A / 85A	10...30 mm
Shore 95A	35...80 mm

General belt hardness choice based on center to center design	
Shore 72A / 80A / 85A	max. 3m
Shore 95A	3...10 m

- On conveyors with fixed center distance between the pulleys, belts with lower shore hardness can be installed manually.
- **Harder materials require tension device to install the belts**
- Attention: The actual pretension may require a verification of the maximal possible load on the belt and the admissible bearing load to avoid overstress on pulleys and bearings.

Please contact us for the optimal belt design.

DRIVE PULLEY DESIGN CONVEYOR BELT: CALCULATION

Length of cylindrical area **b_C**

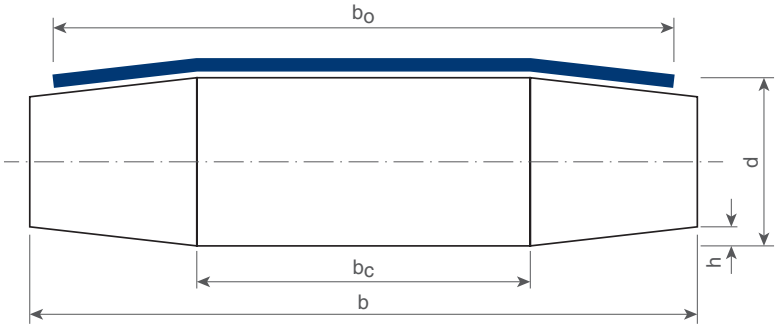
$b_C = b_O / 2$

Pulley width **b**

$b = b_O \times 1,1$

Crown bow **h**

$h = (d + 100) / 450$ mm



As a rule, machine designers traditionally use a drum design with the pitch 1/3 / 1/3 / 1/3.
However, the 1/4 / 1/2 / 1/4 pitch has proven to be particularly suitable for soft belt types.

Belt profiles and coatings

BEHAbelt is a German company based in the heart of Europe. We extrude a complete line of the highest quality Polyurethane and Polyester profiles and conveyor belts for transport and drive applications. True to the motto “smart conveying”, we have been supplying innovative drive and conveying technology products since 1974.

WELDABLE PROFILES MADE OF PU AND TPE

BEHAbelt offers a broad spectrum of belting profiles made of PU and TPE.
Our products are available in various shore-hardness grades to ensure optimal performance and longevity in power transmission and conveying applications.

At BEHAbelt you get extruded Round belts, V-belts and special profiles with smooth or rough surfaces as following:

- PU – from 65° to 95° Shore A
- TPE – from 40° to 63° Shore D
- different color variants - e.g. white, various blue colors, red, orange, green, beige, transparent and many more
- Round belts - from 2 mm to 20 mm diameter
- V-profiles - from 6 x 4 mm to 32 x 20 mm
- Special profiles like ridge top- or parallel V-belts, Profiles in U- or Rectangular shape and much more
- Profiles reinforced with Polyester, Aramid, Steel and weldable glass fiber

AVAILABLE FEATURES

FDA/EC compliant

Hydrolysis resistance

No breeding ground for microbes

Cold flexible

Reduced elongation

UV-C resistant

Antistatic

Metal and X-ray detectable

Raw materials of non-animal origin

2-component production

Colour selection

MATERIALS FOR CUSTOMISED TOOTH AND V-BELT COATINGS

Coating materials for improved grip, accumulation or release of the material being conveyed. High-quality coating belts made of TPU with excellent weldability for your individual coating of timing and V-belts or other products.

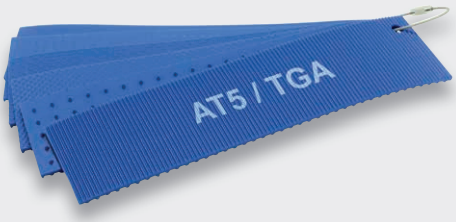
Available in the following versions:

- Coating thickness: 1 - 4 mm
- Coating width: 140 - 750 mm
- Hardness range: 45 A - 95 A

GET YOUR SAMPLES

We will be happy to send you samples of the products you require free of charge. We look forward to hearing from you.

Phone: +49 7684 907-0
E-Mail: info@behabelt.com



Sample ring with positive driven AT5 conveyor belts (20 x 5 cm)

Sample ring with friction-driven conveyor belts (20 x 5 cm)

Sample folder with friction-driven conveyor belts (19 x 14 cm)

Your specialist dealer / System supplier

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BEHAbelt Made in Germany

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