BEHAbelt®

Made in Germany

Elastic monolithic conveyor belts

Product overview, applications, features and accessories

FDA USDA

“ 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.
BEHAbelt offers both friction and positive driven conveyor belts for your applications.

ADVANTAGES

PRODUCT DESIGN	HANDLING
No risk of contamination based on exposed belt fabrics or due to mechanical damage to belt edges	Easy installation of elastic belt versions due to elasticity
Part of a preventive hygienic machinery design concerning food safety	Softer belts allow even a hand mounted possibility with fixed centre to centre machinery designs without any take up
Excellent cleanability and microbial resistance	Butt-end weldings can be made with user-friendly tool, which ensures no loss of surface structure, homogeneity and elasticity in the joining
Homogeneously added product feature options: Metal detectable, X-ray detectable, UV-C resistant, antistatic discharging	Accessories such as corrugated sidewalls, cleats, V-guides and other profiles can be welded on excellently.

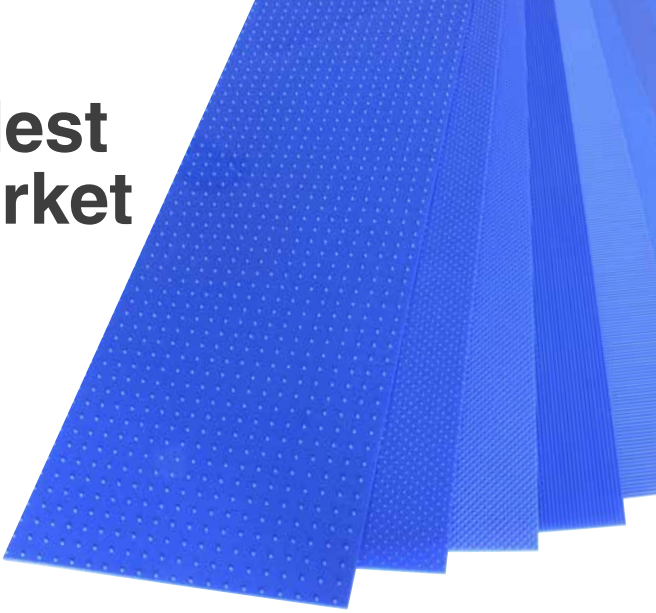
INDUSTRIES AND APPLICATIONS

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)	General conveying, Separation and Acceleration
Packaging (Food and Non-Food)	Weighing, Sorting, Portioning
Pharmacy	Feeding, Cutting, Detecting (metal detectors)
Logistics and Material Handling	and many more

BEHAbelt has the broadest product range in the market

We are keen to understand the challenges and applications of our customers, to provide support through our enhanced product portfolio and know-how. The variety of options to combine surface structures, material features and colors of monolithic conveyor belts, offered by BEHAbelt, are unmatched in the market.



SURFACE STRUCTURES

We currently offer eight different structures for the top side, which can be combined with three structures for the bottom side. Five of these structures (nipples, diamond, smooth matt, transversal and longitudinal grooves) are also available with the unique „MICROclean“ finish.

MATERIAL FEATURES

BEHAbelt elastic belts additionally offer several useful features that enable them to cope even with demanding applications.

FDA EC USDA — FDA/EC conformity for structured surfaces
FDA/EC/USDA conformity for smooth surfaces

Antistatic conveyor belts to ensure electrical discharge in sensitive applications

METAL — Metal detectable belts for utmost food safety. These products are part of the PU SAFE product line

X-RAY — X-ray detectable belts for utmost food safety. These products are part of the PU SAFE product line

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

Microbe-resistant materials do not provide a breeding ground for microorganisms

UV — Protection against UV-C waves generated by respective disinfection device

MICRO CLEAN — Unique surface finish for improved release of sticky goods and excellent cleanability

BEHAbelt is offering a broad spectrum of possible and even individual color options.

2C — The 2-component production enables the combination of different material hardness grades, properties and colours.

HARDNESS

BEHAbelt distinguish between two hardness ranges.

SOFT	PU65A, PU75A, PU80A
HARD	PU95A, TPE55D, TPE63D

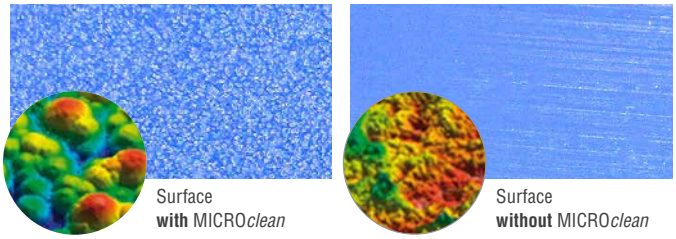
THICKNESS

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)

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

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

2 HARDNESS BELT DESIGN

The production with two components allows a wide range of possibilities to combine different belt hardnesses and structures. As a development partner, we are thus in a position to perfect your machine design.

For example, with the belt design for inclined conveyors the transport side has more grip, but the running side has good gliding properties.

UV-C RESISTANCE

To support regular cleaning and keep bacteria counts on food contact surfaces under control, even during the production hours, more and more machines and conveyors are equipped with UV-C disinfection device. The UV-C rays that are emitted can attack unprotected synthetic materials, like conveyor belts. This results in brittleness and discoloration of surfaces, which bears a certain hygiene risk. Therefore, we provide UV-C protected belts to support longevity and food safety under such circumstances.

ANTISTATIC DISCHARGE

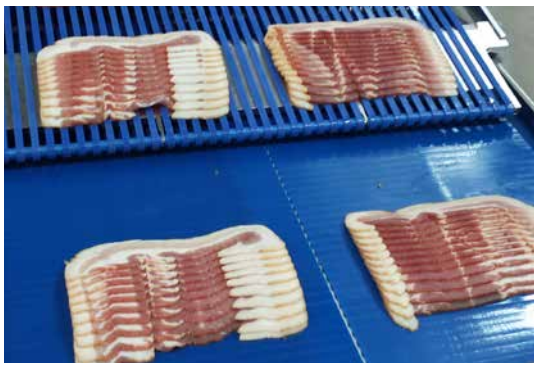
Some sensible applications or process elements (like measure or control units) could be affected by electrical charge that is build up on conveyor belt surfaces. Therefore, we can provide products that are specially equipped with antistatic discharge features to ensure smooth and trouble free performance.

Feel free to ask BEHAbelt, we will check if such products are suitable for your application.

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.

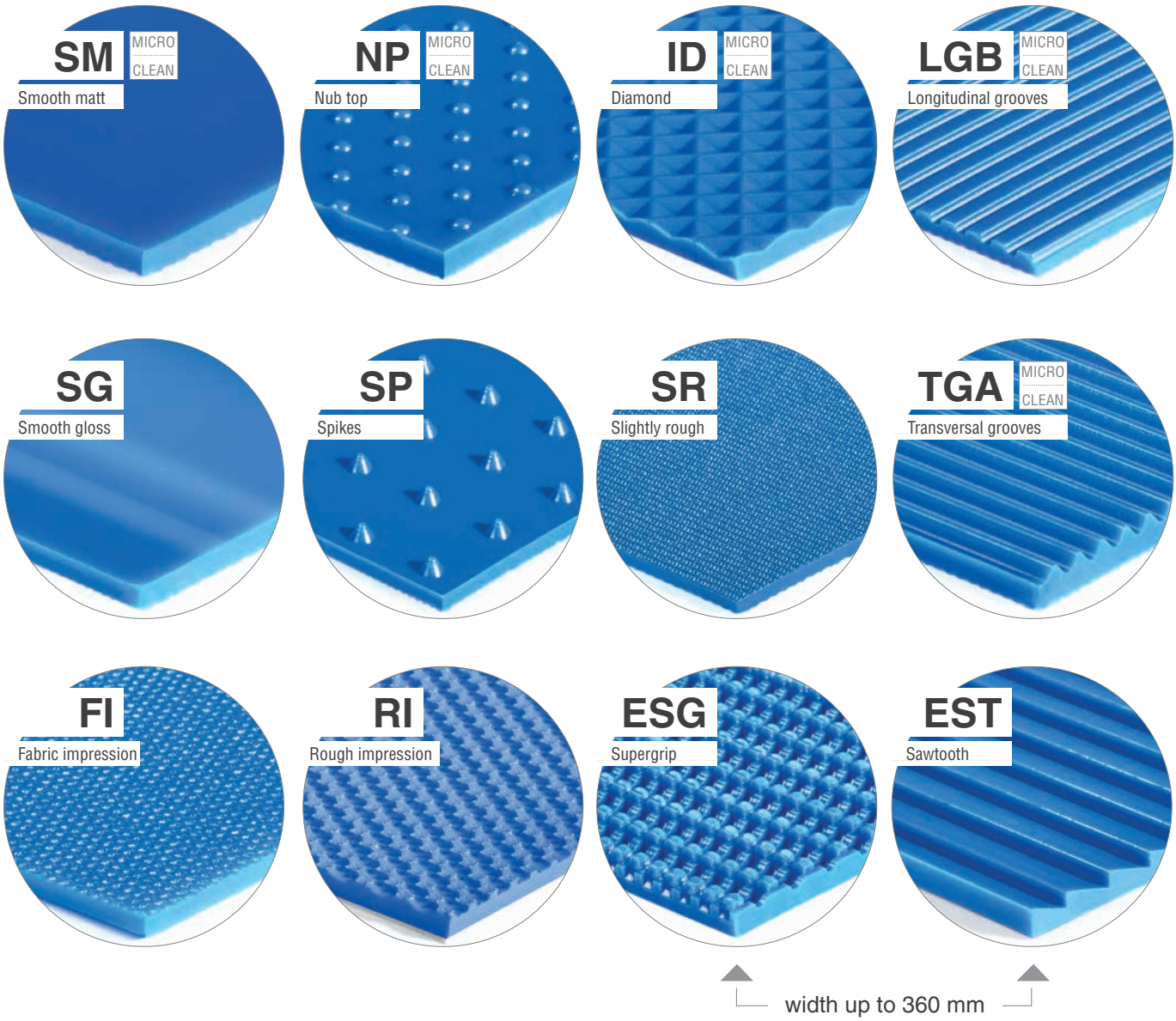


Besides all mentioned features in these charts, the BEHAbelt elastic monolithic belts are offered with the unique MICRO*clean* surface finish. Detailed information on that can be found on page 5.

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.
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 almost arbitrarily. In addition, you have the option of individual colouring and dedicated product properties, such as UV-C resistance or antistatic conductivity; refer to page 4 and 5.



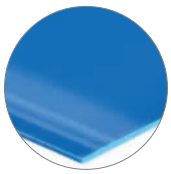
MATERIAL FEATURES

- FDA EC USDA — FDA/EC/USDA conformity for smooth surfaces
- FDA EC — FDA/EC conformity for structured surfaces
- UV — Protection against UV-C waves
- 2C — Belt is made of 2 components for top and bottom side
- Hydrolysis resistant
- X-RAY — X-ray detectable
- METAL — Metal detectable
- Microbial resistant materials
- MICRO CLEAN — Unique surface finish
- Antistatic conveyor belts

COLORS

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

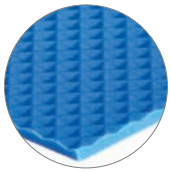
Conveyor belts 750 mm



BOTTOM SIDE: SMOOTH GLOSS (SG), WIDTH 750 mm

FDA EC USDA

Top side	Colour	Features	Quality	Hardness Shore	Profile thickness mm	Profile 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 gloss (SG)	UB	FDA EC USDA	PU95A	95 A	2,0	5/64	35	1,40	1,00	5,60	0,85	4,76	50	164	0,5-3%	FBFL750X20LC
					3,0	1/8	50	2,00	1,50	8,40	1,28	7,14	50	164	0,5-3%	FBFL750X30LC
Smooth gloss (SG)	HI	FDA EC USDA	PU95A	95 A	2,0	5/64	35	1,40	1,00	5,60	0,85	4,76	50	164	0,5-3%	FBFL750X20LG
					3,0	1/8	50	2,00	1,50	8,40	1,28	7,14	50	164	0,5-3%	FBFL750X30LG



BOTTOM SIDE: INVERTED DIAMOND (ID), WIDTH 750 mm

FDA EC USDA | MICRO CLEAN

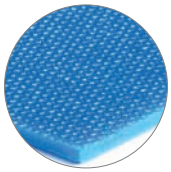
Top side	Colour	Features	Quality	Hardness Shore	Profile thickness mm	Profile thickness inch	Recommended Min. pulley ∅ mm	Recommended Min. pulley ∅ inch	k1% static N/mm	k1% static lbs/inch	k1% relaxed N/mm	k1% relaxed lbs/inch	Standard Roll m	Standard Roll ft	Recommended pretension	Order No.
Smooth gloss (SG)	UB	FDA EC USDA UV	PU80A	84 A	1,8	7/96	18	0,71	0,47	2,64	0,40	2,24	50	164	1-5%	FBFJ750X18LK
		FDA EC USDA			2,0	5/64	20	0,80	0,53	2,96	0,45	2,52	50	164	1-5%	FBFJ750X2LA
	UB	FDA EC USDA	PU95A	95 A	2,0	5/64	35	1,40	0,90	5,04	0,77	4,28	50	164	0,5-3%	FBFM750X2LC
					3,0	1/8	50	2,00	1,40	7,84	1,19	6,66	50	164	0,5-3%	FBFM750X3LC
	HI	FDA EC USDA	PU95A	95 A	2,0	5/64	35	1,40	0,90	5,04	0,77	4,28	50	164	0,5-3%	FBFM750X2LD
					3,0	1/8	50	2,00	1,40	7,84	1,19	6,66	50	164	0,5-3%	FBFM750X3LD
Smooth matt (SM)	UB	FDA EC USDA 2K UV MICRO CLEAN	PU80A PU65A	84 A	1,8	7/96	15	0,60	0,35	1,93	0,29	1,64	50	164	1-5%	FBFGJ750X18L
Slightly rough (SR)	UB	FDA EC	PU80A	84 A	1,0	2/50	10	0,40	0,24	1,32	0,20	1,12	50	164	1-5%	FBFJ750X10LK
		FDA EC UV			1,2	3/64	12	0,47	0,29	1,65	0,25	1,40	50	164	1-5%	FBFJ750X12LJ
					1,8	7/96	18	0,71	0,47	2,64	0,40	2,24	50	164	1-5%	FBFJ750X18LJ
Diamond (ID)	UB	FDA EC USDA MICRO CLEAN	PU80A	84 A	2,2	1/24	22	0,87	0,53	2,96	0,45	2,52	50	164	1-5%	FBFJ750X22LO
		FDA EC USDA 2K UV MICRO CLEAN	PU80A PU65A	84 A	2,2	1/24	18	0,71	0,36	1,99	0,30	1,70	50	164	1-5%	FBFJG750X22L
Transversal (TGA)	UB	FDA EC MICRO CLEAN UV	PU80	84 A	2,8	7/64	25	1,00	0,62	3,49	0,53	2,97	50	164	1-5%	FBFJ750X28LP
Spikes (SP)	UB	FDA EC UV	PU80	84 A	2,0	5/64	20	0,80	0,53	2,96	0,45	2,52	50	164	1-5%	FBFJ750X20LI
Rough impression (RI)	UB	FDA EC	PU75	80 A	2,0	5/64	20	0,80	0,35	1,98	0,30	1,68	50	164	1-5%	FBFI750X20LC
					3,0	1/8	30	1,20	0,59	3,29	0,50	2,80	50	164	1-5%	FBFI750X30LC

Conveyor belts 750

BOTTOM SIDE: SLIGHTLY ROUGH (SR), WIDTH 750 mm

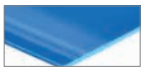
FDA EC

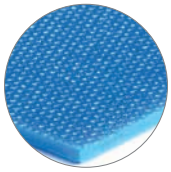
Top side	Colour	Features	Quality	Hard-ness	Profile thickness		Recommended Min. pulley ∅		k1% static		k1% relaxed		Standard Roll		Recommended pretension	Order No.
				Shore	mm	inch	mm	inch	N/mm	lbs/inch	N/mm	lbs/inch	m	ft		
 Diamond (ID)	UB	FDA EC, MICRO CLEAN	PU80A	84 A	1,0	2/50	10	0,40	0,24	1,32	0,20	1,12	50	164	1-5%	FBFJ750X10LK
		FDA EC, UV, MICRO CLEAN			1,2	3/64	12	0,47	0,29	1,65	0,25	1,40	50	164	1-5%	FBFJ750X12LJ
					1,8	7/96	18	0,71	0,47	2,64	0,40	2,24	50	164	1-5%	FBFJ750X18LJ
 Smooth gloss (SG)	TR	FDA EC	PU80A	84 A	1,6	1/16	15	0,60	0,47	2,64	0,40	2,24	50	164	1-5%	FBFJ750X16T



BOTTOM SIDE: FABRIC IMPRESSION (FI), WIDTH 750 mm

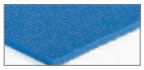
FDA EC

Top side	Colour	Features	Quality	Hard-ness	Profile 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		
 Smooth gloss (SG)	UB	FDA EC	PU65A	72 A	2,0	5/64	12	0,50	0,24	1,32	0,20	1,12	50	164	1-5%	FBFG750X20LA
		FDA EC	PU75A	80 A	1,6	1/16	15	0,60	0,38	2,11	0,32	1,79	50	164	1-5%	FBFI750X16LD
					2,0	5/64	20	0,80	0,47	2,64	0,40	2,24	50	164	1-5%	FBFI750X20LB
					3,0	1/8	30	1,18	0,71	3,95	0,60	3,36	50	164	1-5%	FBFI750X30LB
					4,0	5/32	40	1,57	0,94	5,27	0,80	4,48	30	100	1-5%	FBFI750X40LC
 Smooth matt (SM)	UB	FDA EC, MICRO CLEAN	PU75A	80 A	1,0	2/50	10	0,40	0,24	1,32	0,20	1,12	50	164	1-5%	FBFI750X10LA
					1,6	1/16	15	0,60	0,38	2,11	0,32	1,79	50	164	1-5%	FBFI750X16LA
					2,0	5/64	20	0,80	0,47	2,64	0,40	2,24	50	164	1-5%	FBFI750X20LA
					3,0	1/8	30	1,20	0,71	3,95	0,60	3,36	50	164	1-5%	FBFI750X30LA
 Smooth matt (SM)	WE	FDA EC, MICRO CLEAN	PU75A	80 A	1,0	2/50	10	0,40	0,24	1,32	0,20	1,12	50	164	1-5%	FBFI750X10WA
					2,0	5/64	20	0,80	0,47	2,64	0,40	2,24	50	164	1-5%	FBFI750X20WA
 Smooth matt (SM)	UB	FDA EC, MICRO CLEAN	PU80A	84 A	1,0	2/50	10	0,40	0,29	1,65	0,25	1,40	50	164	1-5%	FBFJ750X1LD
					1,6	1/16	15	0,60	0,47	2,64	0,40	2,24	50	164	1-5%	FBFJ750X16LD
					2,0	5/64	20	0,80	0,59	3,29	0,50	2,80	50	164	1-5%	FBFJ750X20LD

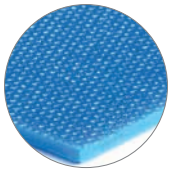


BOTTOM SIDE: FABRIC IMPRESSION (FI), WIDTH 750 mm

FDA EC

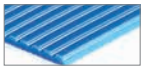
Top side	Colour	Features	Quality	Hard-ness	Profile thickness		Recommended Min. pulley ∅		k1% static		k1% relaxed		Standard Roll		Recommended pretension	Order No.
				Shore	mm	inch	mm	inch	N/mm	lbs/inch	N/mm	lbs/inch	m	ft		
 Smooth matt (SM)	CB	FDA EC, MICRO CLEAN, METAL, X-RAY	PU80A SAFE	84 A	1,0	2/50	10	0,40	0,34	1,89	0,29	1,61	50	164	1-5%	FBFJ750X1LA
					1,6	1/16	15	0,60	0,54	3,03	0,46	2,58	50	164	1-5%	FBFJ750X16LE
					2,0	5/64	20	0,80	0,68	3,79	0,58	3,22	50	164	1-5%	FBFJ750X20LE
					3,0	1/8	30	1,20	1,01	5,68	0,86	4,83	50	164	1-5%	FBFJ750X30LE
	UB	FDA EC, MICRO CLEAN	PU95A	95 A	1,0	2/50	18	0,71	0,50	2,80	0,43	2,38	50	164	0,5-3%	FBFL750X10LA
					1,6	1/16	25	1,00	0,80	4,48	0,68	3,81	50	164	0,5-3%	FBFL750X16LA
					2,0	5/64	35	1,40	1,00	5,60	0,85	4,76	50	164	0,5-3%	FBFL750X20LA
					3,0	1/8	50	2,00	1,50	8,40	1,28	7,14	50	164	0,5-3%	FBFL750X30LA
					4,0	5/32	75	3,00	2,00	11,20	1,70	9,52	30	100	0,5-3%	FBFL750X40LA
 Smooth matt (SM)	WE	FDA EC, MICRO CLEAN	PU95A	95 A	1,6	1/16	25	1,00	0,80	4,48	0,68	3,81	50	164	0,5-3%	FBFL750X16WA
					2,0	5/64	35	1,40	1,00	5,60	0,85	4,76	50	164	0,5-3%	FBFL750X20WA
					3,0	1/8	50	2,00	1,50	8,40	1,28	7,14	50	164	0,5-3%	FBFL750X30WA
 Slightly rough (SR)	UB	FDA EC	PU80A	84 A	1,0	2/50	10	0,40	0,29	1,65	0,25	1,40	50	164	1-5%	FBFJ750X10L
					1,2	3/64	10	0,40	0,35	1,98	0,30	1,68	50	164	1-5%	FBFJ750X12L
					1,6	1/16	15	0,60	0,47	2,64	0,40	2,24	50	164	1-5%	FBFJ750X16L
					2,0	5/64	20	0,80	0,59	3,29	0,50	2,80	50	164	1-5%	FBFJ750X20L
		FDA EC	PU80A	84 A	0,9	1/32	8	0,31	0,33	1,83	0,28	1,56	50	164	1-5%	FBFJ750X09LA
					1,2	3/64	10	0,40	0,35	1,98	0,30	1,68	50	164	1-5%	FBFJ750X12LA
					1,6	1/16	15	0,60	0,47	2,64	0,40	2,24	50	164	1-5%	FBFJ750X16LA
 Spikes (SP)	UB	FDA EC	PU80A	84 A	1,2	3/64	10	0,50	0,29	1,65	0,25	1,40	50	164	1-5%	FBFJ750X12LG
					2,0	5/64	25	1,00	0,53	2,96	0,45	2,52	50	164	1-5%	FBFJ750X2LG
		FDA EC	PU95A	95 A	2,0	5/64	40	1,57	0,90	5,04	0,77	4,28	50	164	0,5-3%	FBFM750X2LA
					2,5	1/10	45	1,80	1,15	6,44	0,98	5,47	50	164	0,5-3%	FBFM750X25LD
					3,0	1/8	55	2,20	1,40	7,84	1,19	6,66	50	164	0,5-3%	FBFM750X3LA
 Nub Top (NP)	UB	FDA EC, MICRO CLEAN	PU65A	72 A	2,0	5/64	15	0,60	0,21	1,19	0,18	1,01	50	164	1-5%	FBFG750X2LB
		FDA EC, MICRO CLEAN	PU80A	84 A	1,6	1/16	15	0,60	0,41	2,31	0,35	1,96	50	164	1-5%	FBFJ750X16LF
					2,0	5/64	20	0,80	0,53	2,96	0,45	2,52	50	164	1-5%	FBFJ750X20LF

Conveyor belts 750



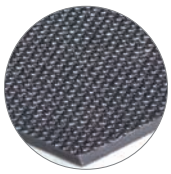
BOTTOM SIDE: FABRIC IMPRESSION (FI), WIDTH 750 mm

FDA EC

Top side	Colour	Features	Quality	Hardness Shore	Profile thickness mm	Profile 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	FDA EC USDA, MICRO CLEAN	PU80A	84 A	1,6	1/16	15	0,60	0,41	2,31	0,35	1,96	50	164	1-5%	FBFJ750X16LL
					2,0	5/64	20	0,80	0,53	2,96	0,45	2,52	50	164	1-5%	FBFJ750X2LB
		FDA EC USDA, MICRO CLEAN	PU95A	95 A	1,6	1/16	25	1,00	0,70	3,92	0,60	3,33	50	164	0,5-3%	FBFM750X16LH
					2,0	5/64	35	1,38	0,90	5,04	0,77	4,28	50	164	0,5-3%	FBFM750X2LH
					2,5	1/10	40	1,58	1,15	6,44	0,98	5,47	50	164	0,5-3%	FBFM750X25LH
					3,0	1/8	50	1,97	1,40	7,84	1,19	6,66	50	164	0,5-3%	FBFM750X3LH
 Longitudinal (LGB)	UB	FDA EC, MICRO CLEAN	PU80A	84 A	1,6	1/16	15	0,60	0,47	2,64	0,40	2,24	50	164	1-5%	FBFJ750X16LK
 Transversal (TGA)	UB	FDA EC, MICRO CLEAN	PU80A	84 A	2,5	1/10	20	0,80	0,53	2,96	0,45	2,52	50	164	1-5%	FBFJ750X25LL
		FDA EC, MICRO CLEAN	PU95A	95 A	2,5	1/10	40	1,57	0,90	5,04	0,77	4,28	50	164	0,5-3%	FBFM750X25LB
					3,5	9/64	55	2,17	1,40	7,84	1,19	6,66	50	164	0,5-3%	FBFM750X35LI

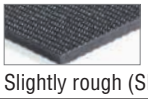
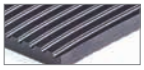
CONVEYOR BELTS FOR LOGISTICS

Elastic conveyor belts reduce the costs of system design, as tensioning device can often be avoided. Depending on the goods to be conveyed or the type of conveyor (e.g. accumulation mode, inclined conveyor), a wide variety of belt features are required. With BEHAbelt's new 2C process, two different degrees of hardness can be combined in one belt, for example to provide the transport side with more grip for inclined conveyors.



BOTTOM SIDE: FABRIC IMPRESSION (FI), WIDTH 750 mm

FDA EC

Top side	Colour	Features	Quality	Hardness Shore	Profile thickness mm	Profile 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 matt (SM)	SW	FDA EC, MICRO CLEAN	PU75A	80 A	1,6	1/16	15	0,60	0,38	2,11	0,32	1,79	50	164	1-5%	FBFI750X16SB
 Slightly rough (SR)	SW	FDA EC	PU80A	84 A	1,2	3/64	10	0,40	0,35	1,93	0,30	1,68	50	164	1-5%	FBFJ750X12SB
					1,6	1/16	15	0,60	0,46	2,58	0,40	2,24	50	164	1-5%	FBFJ750X16SB
 Longitudinal (LGB)	SW	FDA EC, 2K, MICRO CLEAN	PU80A PU65A	84 A 72 A	2,2	1/24	18	0,71	0,47	2,64	0,40	2,24	50	164	1-5%	FBFGJ750X22S
 * Rough impression (RI)	SW	FDA EC	PU80A	84 A	2,0	5/64	20	0,8	0,44	2,47	0,38	2,10	50	164	1-5%	FBFJ750X20SJ

* Bottom side: Inverted diamond (ID)

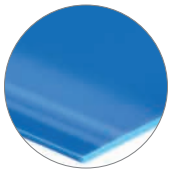
Conveyor belts 360 and 140

BOTTOM SIDE: SLIGHTLY ROUGH (SR), WIDTH 360 mm

FDA EC

Top side	Colour	Features	Quality	Hard-ness	Profile 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		
Sawtooth (EST)	UB	FDA EC	PU75A	80 A	3,0	1/8	30	1,00	0,24	1,32	0,20	1,12	25	82	1-5%	FBFI360X30LB
					4,0	5/32	40	1,40	0,47	2,64	0,40	2,24	25	82	1-5%	FBFI360X40LB
Supergrip (ESG)	UB	FDA EC	PU75A	80 A	4,0	5/32	40	1,40	0,47	2,64	0,40	2,24	25	82	1-5%	FBFI360X40LA
Supergrip (ESG)	HI	FDA EC	PU95A	95 A	4,0	5/32	60	2,40	1,00	5,60	0,85	4,76	25	82	0,5-3%	FBFM360X40LA

Wider version on request

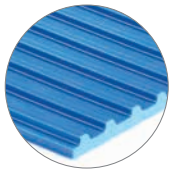


BOTTOM SIDE: SMOOTH GLOSS (SG), WIDTH 140 mm

Top side	Colour	Features	Quality	Hard-ness	Profile 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		
Smooth gloss (SG)	HI	FDA EC USDA	PU75A	80 A	1,0	3/64	10	0,4	0,24	1,32	0,20	1,12	50	164	1-5%	FBFI150X1LG
					1,6	1/16	15	0,6	0,38	2,11	0,32	1,79	50	164	1-5%	FBFI150X16LG
					2,0	5/64	20	0,8	0,47	2,64	0,40	2,24	50	164	1-5%	FBFI150X2LG
					3,0	1/8	25	1,0	0,71	3,95	0,60	3,36	50	164	1-5%	FBFI150X3LG
					4,0	5/32	35	1,4	0,94	5,27	0,80	4,48	50	164	1-5%	FBFI150X4LG
Smooth gloss (SG)	UB	FDA EC USDA METAL X-RAY	PU80A SAFE	84 A	2,0	5/32	20	0,8	0,68	3,79	0,58	3,22	50	164	1-5%	FBFJ150X2LGM
					3,0	1/8	30	1,2	1,01	5,68	0,86	4,83	50	164	1-5%	FBFJ150X3LGM
Smooth gloss (SG)	OR	FDA EC USDA	PU80A	84 A	1,6	1/16	15	0,6	0,47	2,64	0,40	2,24	30	100	1-5%	FBFJ150X16OG
					2,4	3/32	25	1,0	0,71	3,95	0,60	3,36	30	100	1-5%	FBFJ150X24OG
					3,2	1/8	30	1,2	0,94	5,27	0,80	4,48	30	100	1-5%	FBFJ150X32OG
Smooth gloss (SG)	GR		PU85A	88 A	1,0	3/64	15	0,6	0,35	1,98	0,30	1,68	50	164	1-5%	FBFK150X1GG
					1,6	1/16	20	0,8	0,56	3,16	0,48	2,69	50	164	1-5%	FBFK150X16GG
					2,0	5/64	30	1,2	0,71	3,95	0,60	3,36	50	164	1-5%	FBFK150X2GG
					3,0	1/8	35	1,4	1,06	5,93	0,90	5,04	50	164	1-5%	FBFK150X3GG
					4,0	5/32	45	1,8	1,41	7,91	1,20	6,72	50	164	1-5%	FBFK150X4GG

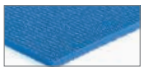
Slip-free AT5 conveyor belts

The positive-driven AT5 conveyor belts enable slip-free traction, even with the smallest pulley diameters of only Ø 18 mm. This means that even conveyor sections with the smallest transfers can now be utilized with a slip-free belt solution.
Thanks to the careful selection of raw materials for direct food contact, the belt solutions offer very good microbial, hydrolysis and chemical resistance.



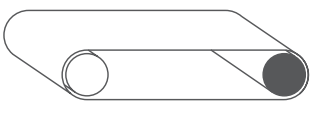
BOTTOM SIDE: AT5, WIDTH 700 mm

FDA EC

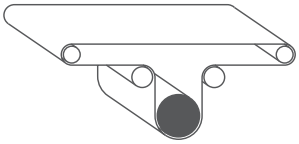
Top side	Colour	Features	Quality	Hardness	Profile thickness		Recommended Min. pulley ∅*		k1% static		k1% relaxed		Standard Roll		Recommended pretension	Order No.
				Shore	mm	inch	mm	inch	N/mm	lbs/inch	N/mm	lbs/inch	m	ft		
 Slightly rough (SR)	UB	FDA EC, 2K,	PU65A PU80A	72 A 84 A	3,0	1/8	18	0,7	0,35	1,98	0,30	1,68	50	164	1,5% ±0,5%	FBFJG750X3LE
 Smooth matt (SM)	UB	FDA EC, 2K, MICRO CLEAN,	PU65A PU80A	72 A 84 A	3,0	1/8	18	0,7	0,35	1,98	0,30	1,68	50	164	1,5% ±0,5%	FBFJG750X3L
 Transversal (TGA)	UB	FDA EC, 2K, MICRO CLEAN,	PU65A PU80A	72 A 84 A	3,8		28	1,1	0,38	2,11	0,32	1,79	50	164	1,5% ±0,5%	FBFJG750X38A
 Nub Top (NP)	UB	FDA EC, 2K, MICRO CLEAN,	PU65A PU80A	72 A 84 A	3,2		25	1,0	0,38	2,11	0,32	1,79	50	164	1,5% ±0,5%	FBFJG750X3LC
 Diamond (ID)	UB	FDA EC, 2K, MICRO CLEAN,	PU65A PU80A	72 A 84 A	3,0	1/8	18	0,7	0,33	1,84	0,28	1,57	50	164	1,5% ±0,5%	FBFJG750X3LD
 Spikes (SP)	UB	FDA EC, 2K,	PU65A PU80A	72 A 84 A	3,0	1/8	25	1,0	0,35	1,98	0,30	1,68	50	164	1,5% ±0,5%	FBFJG750X3LB

Belt drive types: Universally apllicable and even more

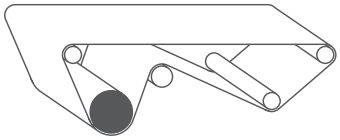
The AT5 belts can be used in different belt drive concepts. While the drive drum ist most effective using the AT5 or T5, idler pulleys are often designed cylindrically smooth with a suitable guide shape.



Head drive



Centre drive



Shifted centre drive

* recommended pulley design: AT5 (optionally also T5 possible)

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

Quality	smooth gloss (SG)	smooth matt (SM)	fabric impression (FI)	rough impression (RI)	Inverted Diamond (ID)	Slightly rough (SR)
PU65A	0,85	0,80	0,65	0,75	0,65	0,65
PU75A	0,70	0,65	0,55	0,50	0,55	0,55
PU80A	0,65	0,60	0,45	0,40	0,45	0,45
PU95A	0,45	0,40	0,25	0,20	0,25	0,25
TPE55D	0,35	0,30	0,20	0,15	0,20	n/a

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**

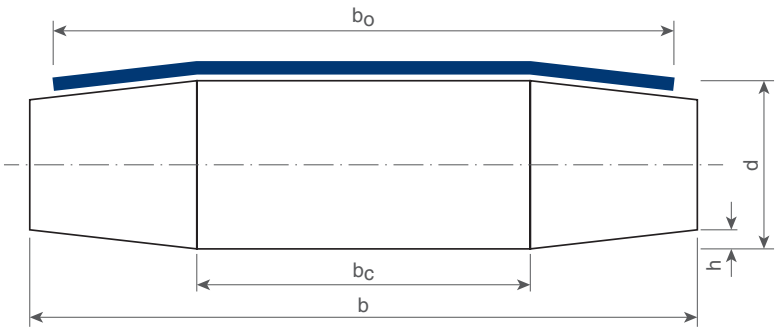
$b_C = b_O / 2$

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.

CALCULATION HELP FOR BELTS

Pretension force belt (N) =
k1% x belt width (mm) x pretension (%) x 2

Axe load (N) =
k1% x belt width (mm) x pretension (%) x 2 / number of axes

Theoretical max. conveyor load (kg) =
k1% x belt width (mm) x pretension (%) / coefficient of friction μ_{dyn} bottom surface belt to contact surface

The mentioned coefficient of friction is the dynamic coefficient of friction. Due to the higher coefficient of friction μ_{stat} when starting the belt, we recommend to consider 2x the dynamic coefficient of friction as a reference value. This is particularly relevant if the conveyor belt is subjected to many start/stop operations. (☞ for μ_{dyn} see also table above)

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 907 170**

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%

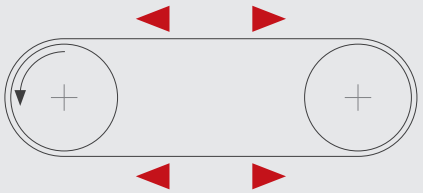
- \+ Smaller redirection
- \+ Lower axle and bearing load
- \- Reduced transport weight
- \- Mechanically more susceptible

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

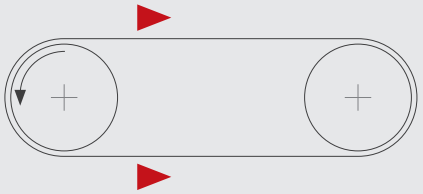


How much force (F) must be applied to pre-tension the belt?

What values are needed for this?

AXLE LOAD (N)

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

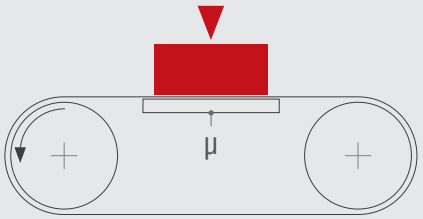


How much force (F) is applied to the axles due to the belt dimension?

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?

KEY

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 %.

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

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

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.

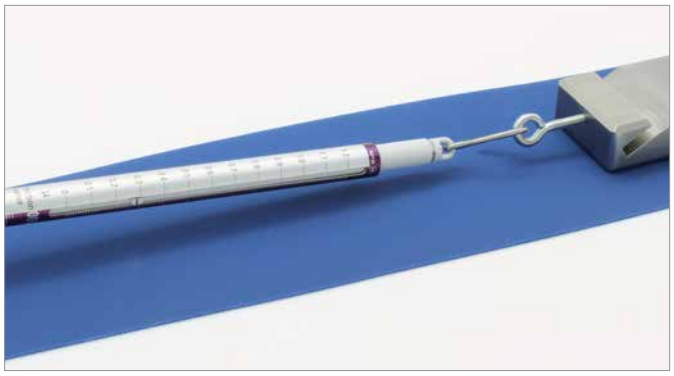
The static value acts immediately when the belt is mounted and thus represents the elasticity behaviour of the belt before it is used and before the usual running-in of the belt.

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.

Reibwert (µ)

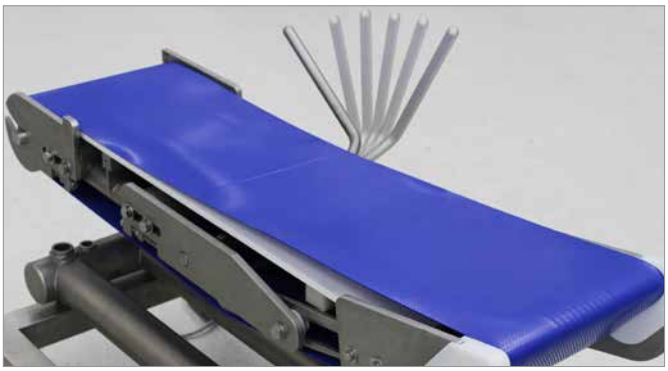
The coefficient of friction is indicated with the formula symbol "µ" and serves as a measure of how high the frictional force acts between two materials (sliding friction). However, this always serves only as an approximate indication. The friction force depends on many different factors and is often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

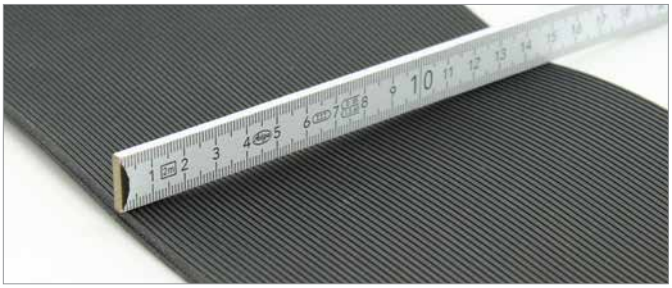
The belt tension is directly related to the running behavior. If the tension is too high, the running behaviour will be unstable and machine components such as bearings and shafts will be subjected to high stress. Too little tension leads to slippage and abrasion on the drive pulley and possibly also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



Welding tools for conveyor belts

BEHAbelt has developed the **HS400** and HS800 welding units especially for the butt welding of conveyor belts. For the design of the press, we have intensively dealt with the work processes and the technical requirements for these welding processes. In addition, the focus was placed on repeatability and precision.

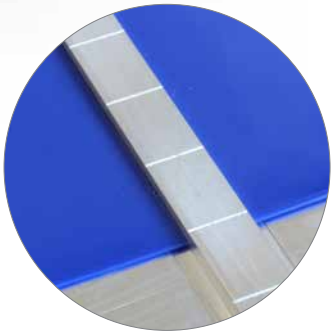
HS400 & HS800

Tutorial-Video „HS400/800“
https://youtu.be/sbCaJ2dqprs

WELDING TOOL FOR BUTT WELDING OF CONVEYOR BELTS

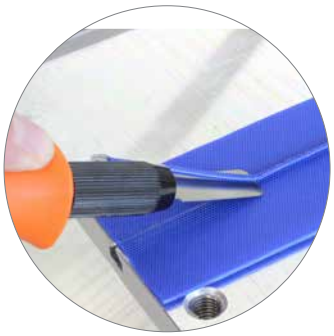
- HS400 for welding up to 400mm belt width
- HS800 for welding up to 800mm belt width
- Sophisticated design with positioning aids and stops ensures high repeat accuracy in the welding processes
- Clamping lever with locking device
- Robust and handy design of the individual components
- Exact temperature 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

Stopper for precise, repeatable welding



Precise and aligned insertion of the belt ends

Clamping bars with chamfer for optimum shaping of the welding bead



Easy removal of the welding bead with the supplied tool

Adapter plates for HS400 & HS800

For optimum alignment and clamping of the belts to be welded in the joining table, optional adapter plates for more complex structures are available (not included in the standard product range).

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 WELDING OF FLAT BELT STRIPES AND PROFILES

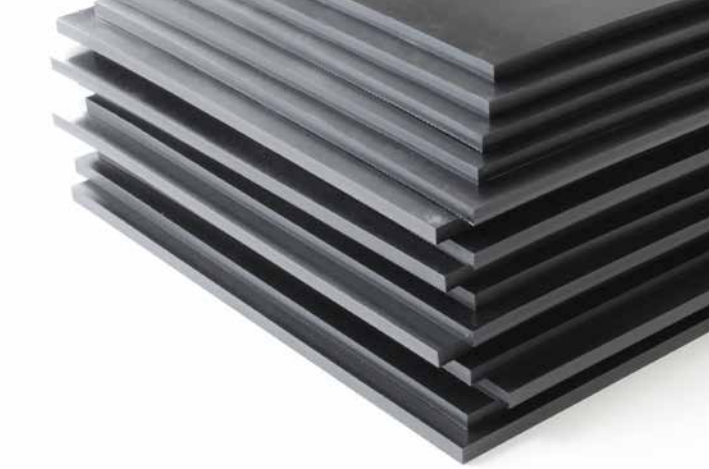
- EErgo 90 for welding flat belt stripes up to a width of 80 mm
- Very fast heating time of approx. 3 minutes
- Strong, fiberglass-reinforced ergonomic housing
- Easy to use temperature selector regulates correct temperature to weld PU or TPE profiles
- Constant welding temperature at different ambient 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“
https://youtu.be/es1vywP0M6c

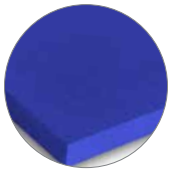
PU sheet material



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

- Blue FDA-compliant versions with smooth surfaces in Shore 84A and 95A
- Industrial quality with smooth/fine structured surface in Shore 84A

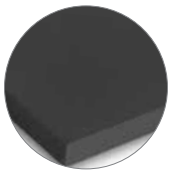
Typical areas of application are: Welded-on profile (cleats), scraper, skirts, impact (damping) protection or seals.



TOP SIDE: SMOOTH MATT (SM), WIDTH 750 mm

FDA EC | MICRO CLEAN

Bottom side	Color	Features	Quality	Hardness	Profile thickness		Weight* per pc.	Sheet length		Min. pulley ∅		Order No.
				Shore	mm	inch	approx. kg	m	ft	horizontal	vertical	
 smooth matt (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 MATT (SM), WIDTH 750 mm

Bottom side	Color	Features	Quality	Hardness	Profile thickness		Weight* per pc.	Sheet length		Min. pulley ∅		Order No.
				Shore	mm	inch	approx. 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 matt (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; Other panel lengths are also available on request

Weldable accessories for conveyor belts

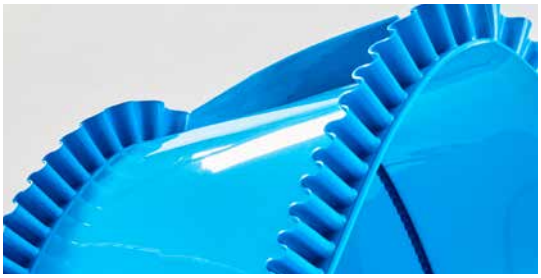
There is a wide field of applications for synthetic conveyor belts. Depending on the industry, the products to be conveyed and the given machinery design, conveyor belts not only have to be fabricated to specific dimensions (length and width), often they are also equipped with cleats, sidewalls or tracking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

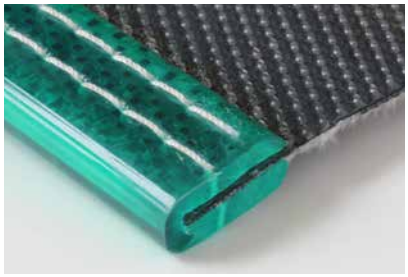
Our flat belt accessories consist of the same raw materials as the conveyor belts to ensure the best possible weldability and a long service life in the application.

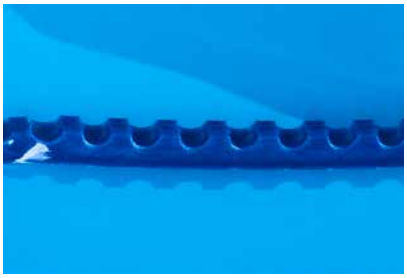
Of course, the BEHAbelt flat belt accessories are also available with FDA/EC/USDA compliance on request and can further be offered with special features such as detectable, UV-C resistance or hydrolysis resistance.

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 20-120mm)
- 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.

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 2mm to 20mm diameter
- V-profiles - from 6x4mm to 32x20mm
- Special profiles like ridge top- or parallel V-belts, Profiles in U- or Rectangular shape and much more
- Profiles re-inforced with Polyester, Aramid, Steel and weldable glass fiber

AVAILABLE FEATURES

Antistatic Discharge | Hydrolysis resistance (HY) | Temperature flexibility | Reduced elongation | UV-C Resistance | Food Safety | metal detectable | X-ray detectable | 2-component production | No breeding ground for microbes | Color selection

MATERIALS FOR INDIVIDUAL TIMING BELT AND V-BELT COATINGS

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

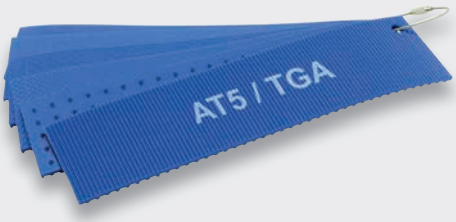
Available in the following versions:

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

GET YOUR SAMPLES

We are happy to provide you with samples of your required products free of charge. We are looking forward to your message.

Phone: +49 7684 907-0



Sample ring with positive-driven AT5 conveyor belts (20x5cm)

Sample ring with friction driven conveyor belts (20x5cm)

Sample folder with friction drive conveyor belts (19x14cm)

Your specialist dealer / system supplier

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