berndorf BAND GROUP

Steel Belts for Food Processing

Your global partner for steel belts in the food industry

Dependable, sanitary and easy to clean

Berndorf Band manufactures steel belts for foodstuffs and luxury food industry that are subjected to enormous loads of mechanical and thermal stress. Even though exposed to frequent changes in temperature and a high number of load cycles, they perfectly retain their flatness and shape. The smooth and abrasion resistant belt surface keeps fibers and remnants of fat from lodging in the steel belt. The belts, thus, not only satisfy the highest sanitary standards and are exceptionally easy to clean, they also reduce the need for cleaning agents significantly and therefore help to save time and money and protect the environment. High-quality steel belts made in Berndorf are primarily used in the production of chocolate, coffee, cheese, animal food and meat.

One factor of essential importance to the quality and lifetime of the belt is the selection of its material. As wet cleaning is applied on any given day in the food industry, steel belts must offer exceptional corrosion resistance.

"When it comes to cooling, deep-freezing, steaming, drying and conveying food, steel belts are often exposed to extreme stress. The belts need to be able to withstand tremendous mechanical and thermal loads during the various processing steps. Thankfully, a steel belt made in Berndorf offers exceptional resistance even if exposed to frequent changes in temperature and a high number of load cycles."

Richard Szigethi
Technical Product Manager

Highlights

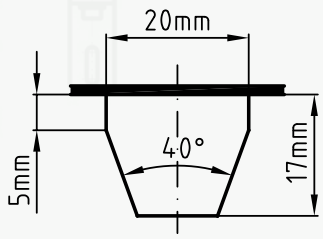
- Long lifetime of the belts
- Effortless cleaning in compliance with strictest sanitary standards
- Temperatures of up to 400 °C | 750 °F
- Excellent conductibility of temperatures
- Exceptional belt running properties
- Consistently high product quality
- Perfect belt geometry

Vee-ropes and product retaining strips

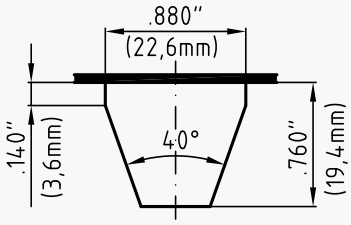
Berndorf applies a special manufacturing method to guarantee perfect adhesion of their vee-ropes and product retaining strips. Customers can choose from different vee-ropes or product retaining strips for their steel belts that vary with the application and the operating temperature. The materials available are nitrile rubber (-20 °C to +100 °C), natural rubber (-60 °C to +60 °C), silicone rubber (-80 °C to +300 °C) and spiral vee-ropes made of stainless steel (+100 °C).

Standard profiles

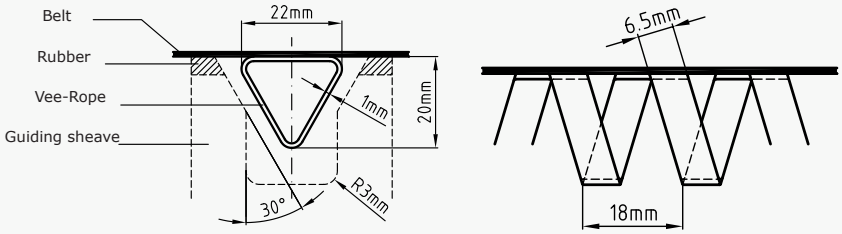
EU Profile

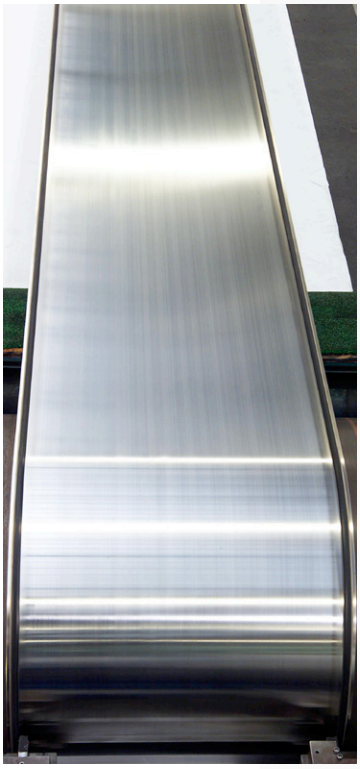


USA Profile



Spiral Vee-Ropes





Belt tracking- and tensioning systems

Another recommended option to ensure exact and reliable belt running is the installation of Berndorf's specially engineered belt tensioning and tracking systems. The available systems fall into two categories: the tensioning and tracking system bernmatic® and the berntrack® pure belt tracking system for machines that already have a tensioning system in place. After subjecting the machine to a thorough inspection by one of their experts, the Berndorf Band Group will compose the most suitable system and install it within a few weeks.

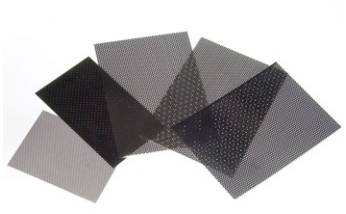
Physical and mechanical properties of the steel belts

Material			NICRO 12.1	NICRO 22	NICRO 31	NICRO 52	NICRO 52.6	CARBO 13	CARBO 32	NICRO 85
Type			CrNi 17 7	CrNiMo 17 12 2	CrNiTi 13 4	CrNiCuTi 15 7	CrNiCuTi 15 7	Ck 67	-	CrNiMoN 25 7 4
Similar material		DIN AISI	1.4310 301	1.4401 316	1.4313 -	- -	- -	1.1231 -	- -	1.4410 -
Tensile strength	at 20 °C	N/mm²	1,150	1,100	1,080	1,150	1,550	1,200	1,280	1,350
0.2% yield offset strength	at 20 °C	N/mm²	950	970	1,050	1,100	1,500	970	1,220	1,250
Hardness		Rockwell HRC Vickers HV 10	37.0 360	33.0 330	33.5 330	37.0 360	48.0 480	36.0 350	42.0 410	39.0 380
Elongation 50 mm		%	18	12	5	8	6	8	5	6
Welding factor			0.70	0.65	0.95	0.95	0.80	0.80	0.80	0.70
Fatigue strength under reversed bending stress*	at 20 °C	N/mm²	480	440	480	500	700	450	550	385
Modulus of elasticity	at 20 °C at 200 °C	N/mm² N/mm²	200,000 180,000	200,000 180,000	205,000 -	200,000 188,000	200,000 188,000	210,000 -	205,000 -	200,000 186,000
Density		kg/dm³	7.90	7.95	7.70	7.74	7.74	7.85	7.82	7.80
Mean coefficient of thermal expansion	20-100 °C 20-200 °C 20-300 °C 20-400 °C	10^{-6} m/m°C 10^{-6} m/m°C 10^{-6} m/m°C 10^{-6} m/m°C	16.0 17.0 - -	16.5 17.5 - -	10.8 11.2 11.7 -	10.9 11.5 11.7 -	10.9 11.5 11.7 -	11.1 11.9 12.5 12.9	11.8 12.4 12.6 12.9	13.0 13.5 14.0 -
Specific heat		J/g°C	0.50	0.50	0.46	0.50	0.50	0.46	0.46	0.50
Thermal conductivity	at 20 °C	W/m°C	15	15	21	16	16	46	38	15
Specific electric resistance	at 20 °C	Ohm mm²/m	0.73	0.75	0.60	0.80	0.80	0.13	0.20	0.80
Max. permissible operating temperature		°C °F	250 480	250 480	350 660	350 660	350 660	400 750	350 660	250 480
Tensile strength at max. permissible operating temperature		N/mm²	940	870	970	900	1,250	850	1,100	1,070
0.2% yield offset strength at max. permissible operating temperature		N/mm²	770	770	930	830	1,180	720	1,050	1,023

* 50 % of the test specimens withstand 2,000,000 load cycles.
Typical values. If not otherwise specified, the values given apply at room temperature. Subject to change due to technological progress. Errors and omissions excepted.

Standard perforations*			
Hole diameter	2.5 mm	3.0 mm	3.1 mm
Triangular pitch	5.0 mm	6.5 mm	5.0 mm
Open space	22.68 %	19.32 %	34.87 %

* More perforations are available on request.



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