esbelt
Conveyor belts

ISO 9001:2015

Thermoplastic belts in solid urban waste (MSW) plants

More cost-effective compared to rubber belts
30% savings on energy
50% savings on maintenance
Reduction of CO_2

Data extracted from a real case in a solid waste sorting plant after replacing all their rubber belts with esbelt belts.

Lightweight thermoplastic belt for the **recycling** industry

esbelt manufactures a wide range of belts and accessories for the recycling industry. Specially designed to offer maximum performance, reducing costs in energy consumption, maintenance and equipment costs, increasing production capacity, and reducing CO_2 emissions.

In the following pages, we explain the main reasons why it is worth investing in **esbelt** belts. We will justify the changes that the recycling industry needs to take to replace heavy rubber belts with esbelt lightweight thermoplastic belts. Also, you will find a real case study of an esbelt belt installation in a solid waste sorting plant and we will briefly introduce you to our belts for optical sorters and our reinforced profiles.

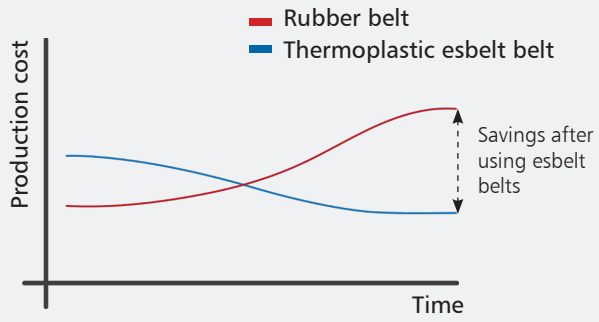
Espot 40CC, initial triage.

Drago 30CC, plastic conveying.

Breda 22UF-TR, magnetic separator.

esbelt belts:
the efficient alternative to rubber belts

Illustrative graph comparing the production costs over time of installing rubber vs thermoplastic belts.



Although the initial investment is more expensive, a few months after installing esbelt thermoplastic belts, the cost is compensated, and it transforms to greater economic benefits in the medium term for the following resasons:

Up to 40% reduction in replacements

Longer life span of esbelt belts due to the high resistance of the belt covers to external aggressions such as cuts, abrasion, liquids and oils.

Up to 40% reduction of stoppages

- Reinforced profiles with high resistance to impact and tearing, do not peel off. Rubber belts tend to have profiles that come loose more easily.
- Thermoplastic belts can continue working after an accidental cut and can be repaired during the scheduled maintenance.

Maintenance savings up to 50%

- Better handling and faster belt replacement (lighter than rubber).
- Easier " on-site " repairs.
- Easier and faster to clean.

Energy savings up to 30%

- **esbelt** PVC and TPU belts are lighter, as such, less energy is needed to move the belts and the conveyor's moving parts (motor, gears, rollers).
- Lower CO_2 emissions to the atmosphere.

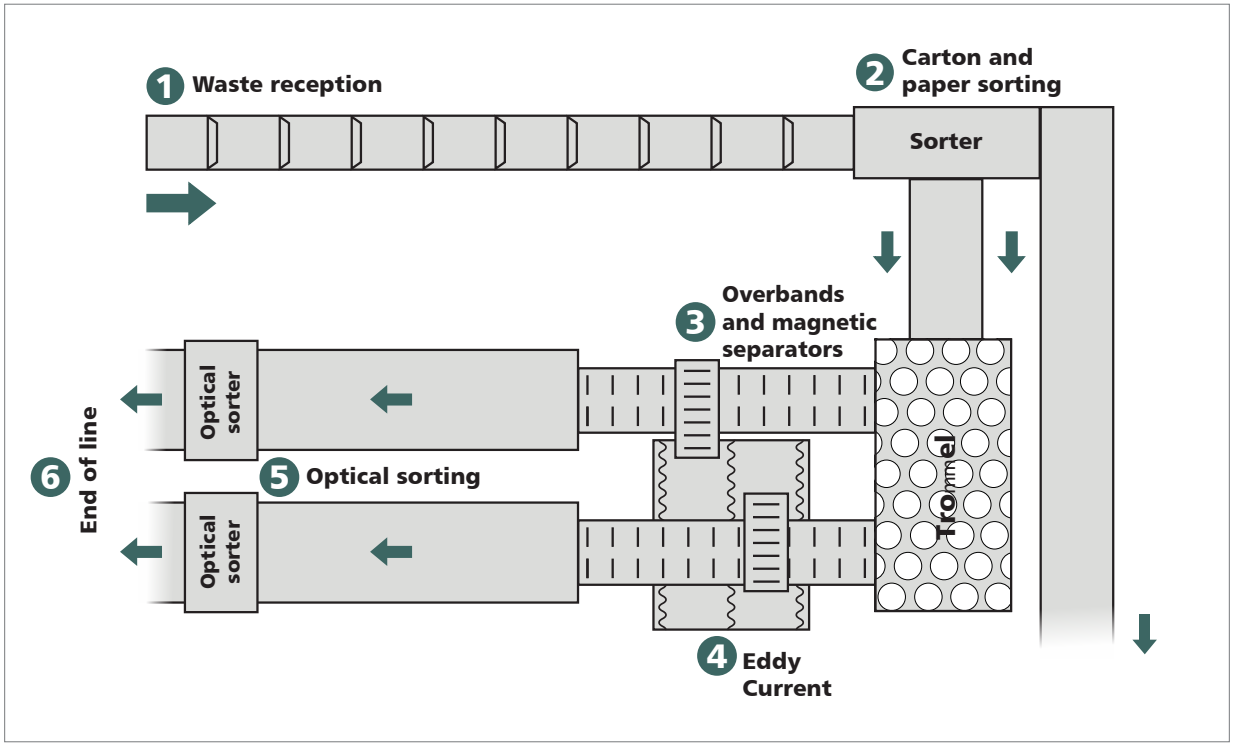
Increased production capacity by up to 15%

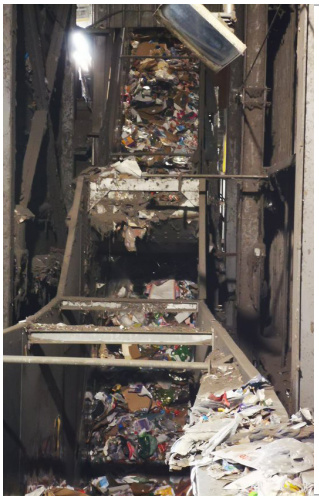
- Fewer stoppages caused by the need to repair damaged belts.
- Increased processing speed.

Lighter, smaller and more economical conveyors

- More flexible and lighter structures.
- They can run on slider beds with very low friction.
- Smaller rotating diameters (smaller drums).

Case study
in a solid waste sorting plant





Waste reception

1

Mainly paper, cardboard, tetrabrick and tins. Also sharp, abrasive and sticky foreign objects.

KERAM 40UF installed on chains with transverse metal profiles.

Belts used in similar installations:

BREDA 30CF with reinforced profiles.
DRAGO belts (flexible weft) for flat or troughed roller conveyors.

Separation of cardboard and paper

2

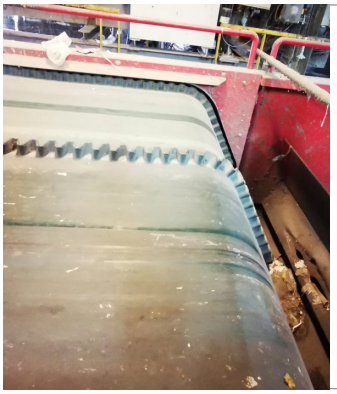
Lightweight belts with a low coefficient of friction on the support table. This allows the use of lighter structure conveyors, with reduced drum diameters and motors with lowered power motors with less energy consumption.

Overbands and magnetic separators for the metal sorting

3

KERAM 40AF, with reinforced profiles.

KERAM 40UF, with 2 rows of reinforced TPU profiles.



Eddy Current

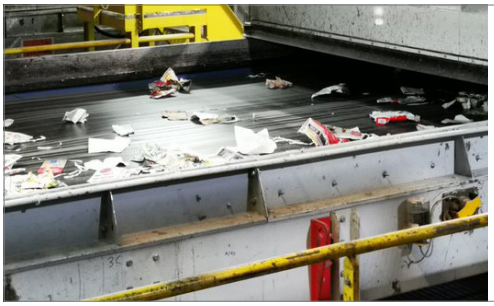
4

BREDA 22CF, 4mm PVC belt with 3 sidewalls "Runers".

Belts used in similar installations:

BREDA 22UF-TR 4,3mm TPU.
Better magnetic charge transfer and higher abrasion and cut resistance.

BREDA 12UFMT-BK 1,5mm TPU.
For lighter loads.

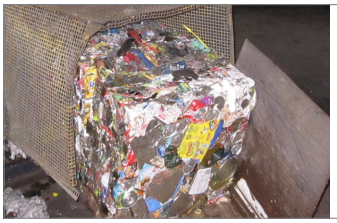


Optical Sorting

5

BREDA 21UFMT-BK and BREDA 31UFMT-BK

In contrast to rubber belts, our **BREDA 21UFMT-BK** and **BREDA 31UFMT-BK** work perfectly at high speeds and remain completely flat.



End of line

6

BREDA 20CF, 25CF, 30CF

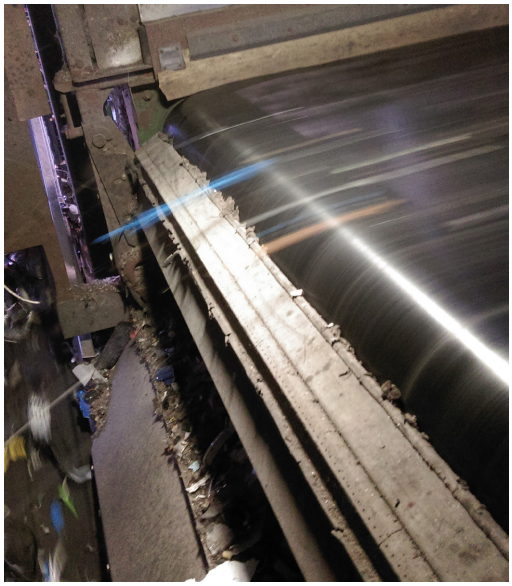
The belt selection depends on the load conveyed at the end of the sorting process.

Achieved results

Previous rubber belts	**esbelt thermoplastic belts**
Monthly replacements due to severe damage.	Less frequent replacements. **KERAM 40UF** has been working for 6 years without needing to be replaced.
Numerous stoppages due to longitudinal cuts in the belts.	Fewer stoppage times. If the belts are damaged, they can still continue to operate until scheduled maintenance.
Very heavy weight. Higher energy consumption. Lower speeds.	Reduced energy consumption with lighter belts. Higher speed, increased productivity.

Optical Sorting

BREDA 21UFMT-BK and **BREDA 31UFMT-BK**



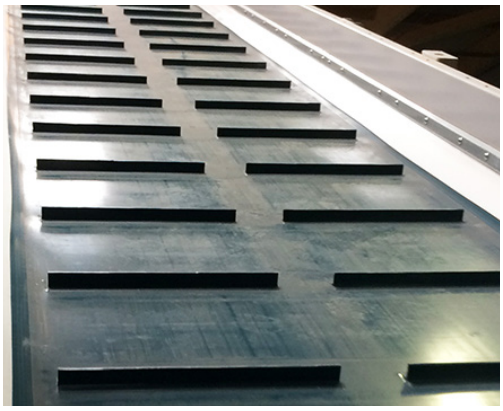
- Black TPU matt belts.
- Facilitates identification, good guidance and centering, and high stability, keeping the belt completely flat.
- Uniformity with identical thickness along the entire belt, including the joint area. Avoids stress and vibrations which could lead to the breaking of roller shafts, as it happens with rubber belts. (See photo below)

- Unlike the rubber belts, our **BREDA 21UFMT-BK** and **BREDA 31UFMT-BK** work perfectly at **speeds >+4,5 m/s** for materials coming from the plastic recycling bins.

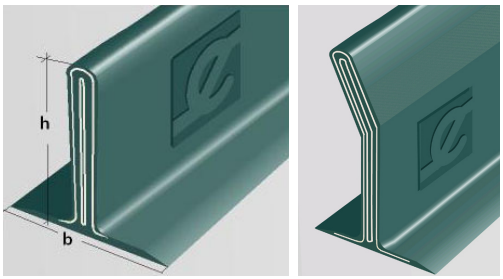
Advantages	Benefits
These TPU belts are matt, flat, rigid and homogenous.	Facilitate material classification as the top cover is completely flat and regular.
TPU belt joint is a continuation of the rest of the belt. With identical thickness and finishing throughout the entire belt and no thickness irregularity.	As the TPU belts are totally uniform, they do not vibrate during their course of motion. Therefore, there is no distortion to the identification of the optical sorter.
The higher the speed of the belt, the higher the need for its uniformity and to stay completely centered and without any oscillation or skip.	Error-free, smooth and continuous flow during the material classification.
TPU belts with strong fabric. They are lighter and longitudinally more flexible than rubber belts. TPU belts have less coefficient of friction on slider bed.	Less energy consumption, reduction of CO_2, and less stress on moving conveyor elements (rollers, motors, gears).
TPU belts have excellent resistance to chemical and mechanical harm (oils, abrasions, impacts).	Belts can last longer.

Straight and inclined **reinforced** profiles

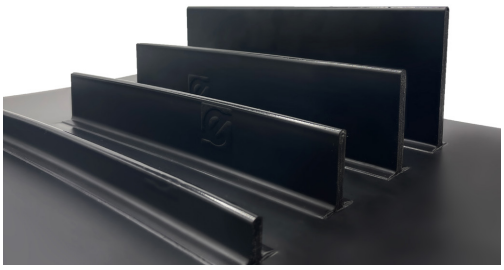
- Specially designed for difficult working conditions.
- Highly resistant to impact on receiving and conveying waste.
- They increase transverse rigidity of the belt, allowing for greater stability on the conveyor.
- They have the same chemical resistance as the belt.
- With high frequency welding, they fuse perfectly with the belt resulting in greater resistance to fatigue and flexibility.



Profile	Dimensions		Transverse attachment		Length (mm)	Color	Material
	b (mm)	h (mm)	Min. pitch (mm)	Min. ø (mm)			
NRR030	50	30	70	120	2000	Blue 06, White and Green 00	PVC
NRR050		50					
NRR070		70					
NRR100		100					
NIR070		68					
NIR100		97					
URR020	25	20	55	80	2000	Blue 06 and Black	PU
URR030		30					
URR040		40					
URR050		50					
URR060		60					
URR090		90					



Straight and inclined reinforced PVC profile.



Straight reinforced PU profiles.

Waste classification centre in the south of France*:

Application: primary separation

Belt type, dimensions and cleats.

Rubber C/C belt (type 400/3 2+00AA abrasion resist.) 1400mm x 27,8m + 45 Reinforced cleats (type TX Charbonnier) in lines of 3.	**BREDA 30CF** 1400mm x 27,8m + 45 Reinforced cleats NRR50 in lines of 3.

Number of breakdowns per year due to detached cleats.

1 - 2 per year.	0

*Approx. line capacity: 28 T/h.

Main **esbelt** belts in the recycling process

Belt type	Top cover			Bottom cover	Fabrics		Total Thickness mm	at 20ºC A B ø mm	ø mm	Working load at 1% N/mm	Max. roll width mm	Organic waste	Non-organic	First sorting	Overbands	Magnetic sorting	Eddy Current	Optical sorting	End of line
	Material	Color	Finish	Finish	Nº plies	Weft													
BREDA 12UFMTBK^{V}	PU	Black 00	Matt	WP AS	2	Rigid	1,50	20	50	10	3000		●	●			●		
BREDA 20CF	PVC	Green 00	Smooth	Fabric	2	Rigid	2,90	55	75	15	3000		●	●					●
BREDA 21UFMTBK^{V}	PU	Black 01	Matt	Impr.	2	Rigid	4,00	100	200	12	3000		●					●	
BREDA 31UFMTBK^{V}	PU	Black 01	Matt	Impr.	3	Rigid	6,00	230	230	32	3000		●					●	
BREDA 22CF	PVC	Green 00	Smooth	Fabric	2	Rigid	4,00	80	100	17	3000		●	●			●		●
BREDA 22UF-TR^{V}	PU	Transp.	Smooth	Impr.	2	Rigid	4,30	100	200	15	3000		●	●	●	●	●		
BREDA 25CF	PVC	Green 00	Smooth	Fabric	3	Rigid	4,00	100	120	22	3000		●	●					●
BREDA 30CF	PVC	Green 00	Smooth	Fabric	3	Rigid	4,90	120	150	22	3000		●	●					●
DRAGO 20CC	PVC	Green 00	Smooth	Smooth	2	Flexible	4,10	140	140	20	2000		●	●					
DRAGO 30CC	PVC	Green 00	Smooth	Smooth	3	Flexible	6,20	200	250	30	2000		●	●					
DRAGO 40CC	PVC	Green 00	Smooth	Smooth	4	Flexible	7,40	300	350	35	2000		●	●					
ESPOT 20CC	PVC	White	Smooth	Smooth	2	Flexible	4,30	140	140	20	2000	●		●					
ESPOT 30CC	PVC	White	Smooth	Smooth	3	Flexible	6,20	200	250	30	2000	●		●					
ESPOT 40CC	PVC	White	Smooth	Smooth	4	Flexible	7,40	300	350	35	2000	●		●					
KERAM 40RF	PVC	Black 03	Impr.	Fabric	2	Rigid	4,00	60	100	22	2000		●	●	●	●			
KERAM 40UF	PU	Green 09	Smooth	Fabric	2	Rigid	4,00	140	330	22	2000		●	●	●	●			

^{V}= PVC between plies WP= Low-capillary fabric "Water Proof" (Wicking Test G11) AS= Antistatic Impr.= Impregnation

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