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# WASTE MANAGEMENT SOLUTIONS

CORPORATE BROCHURE



**BEZNER**  
HEILIG GROUP





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### HEILIG GROUP

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# ABOUT BEZNER

## WASTE MANAGEMENT SOLUTIONS

Bezner is a leading engineering and manufacturing company of recycling and waste management machinery. We supply our products to industries who turn waste to energy and extract valuable recyclables such as paper, metals, glass, and plastics that can be sustainably reprocessed.

Operating internationally, we design and install both single machines and turn-key solutions for conveying, separating, sorting, and screening. With our in-house team of mechanical and electrical engineers and production facility, we supply customized components with a high throughput and excellent recovery and purity rates.

## OUR HISTORY

In 1899, Bezner Anlagen und Maschinenbau started out as a manufacturer of specialized machines for wood treatment and screens. About three decades ago, as a forerunner, Bezner diverted to recycling machines and conveyor systems. In 2007, Bezner became part of the Heilig Group.

This extension offers our customers financial stability and broad access to the group-wide knowledge in industrial technology leading to further innovations. In subsequent years, new businesses for Bezner were founded in USA and France.

## CUSTOM MADE SOLUTIONS

For optimal recycling, a variety of techniques is used. The goals are to pre-sort, sort, separate, recover, clean, and dry the materials from a waste stream during a continuous operation and with an absolute minimum of maintenance time. Our knowledge is extensive, and it is our experience that a suitable solution is a customized solution. Bezner listens to its customers and according to their requirements, designs complete turnkey installations including, among others, screens, conveyors, dosing bunkers, silos, hoppers, crushers, eddy current separators, overbelt magnets, optical sorting (NIR), classifiers, and air separators. Including our engineers at an early stage enables us to offer the customized installations with optimal recycling and material recovery results.

## INNOVATIVE SOLUTIONS

At Bezner, we understand that your production or recycling process and/or waste treatment installation is unlike any other. Above all, your sorting facility requires specific equipment design to generate a high throughput and excellent recovery purity rates.

## BEST RECYCLING TECHNIQUES

Optimal recycling means selecting the ultimate installation design and applying high-quality materials, meeting your requirements. We have an in-house team of engineers for both mechanical and electrotechnical engineering. We are experienced in PLC programming and project management. Moreover, we have an in-house production facility. With our allround skills, expertise and the cooperation with first class suppliers, we have been supplying excellent installations to our customers. We have many solutions, examples and references to share with you.

## ONE-STOP-SHOP SOURCE

We build waste sorting, recycling, material recovery or conveying components according to your specific

demands. Let our project management team assist you in finding the optimal combination of sorting equipment and conveyors. Every single part of your installation will be engineered and produced in-house, including conveyors, screening machines, separators, bunkers, silos, washers, and electrical hardware and software. Consider Bezner your partner and one-stop-shop source. We gladly offer services including research for process conditions, engineering, manufacturing, installation, cold and hot commissioning, technical assistance, service and maintenance and 24/7 emergency service.

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# INDUSTRIES WE SERVE

## MATERIAL RECOVERY FACILITIES

The key to proper waste management is utilizing the best separation techniques. Material Recovery Facilities (MRF) require the most efficient installations to create valuable materials from the waste stream to achieve the highest throughput, recovery, and purity rates.

## WASTE TO ENERGY PLANTS

Waste-to-energy (WTE) plants use advanced fuel preparation and material recovery solutions to generate green energy from waste. They also contribute with landfill diversion by reducing the volume of disposed waste, maximizing the value of waste streams and minimizing the environmental impact. We provide the most advanced systems for the preparation of Refuse Derived Fuels (RDF) and Solid Recovered Fuels (SRF).



**MATERIAL RECOVERY  
FACILITIES**



**WASTE TO ENERGY  
PLANTS**



# INDUSTRIES WE SERVE



**RECYCLING AND  
REPROCESSING  
PLANTS**



**BIOMASS AND  
WOOD RESIDUAL  
RECYCLING**



**INCINERATOR  
BOTTOM ASH (IBA)  
RECYCLING**



**COMPOST OR  
ANAEROBIC  
DIGESTION**

## RECYCLING AND REPROCESSING PLANTS

Separated materials, such as metals, soils, wood, aggregates, plastics, RDF and SRF from the Material Recovery Facilities (MRF) are further processed in recycling or reprocessing plants. Our extensive knowledge can be found in the plastic bottle (PET) recycling, pulp and paper industry, anaerobic digestion and biomass industry.

## BIOMASS AND WOOD RESIDUAL RECYCLING

In this industry, multiple of our applications can be found in size reduction, classification of wood fractions, separation of metal and non-metal contaminants, transshipment systems, and to generate materials for further processing in the manufacturing of building supplies and fuel for biomass.

## INCINERATOR BOTTOM ASH (IBA) RECYCLING

Thanks to the latest technology applied to Bezner machines, the IBA can recover valuable residual metals and process the IBA into aggregates (IBAA). We are experienced in supplying turnkey metal recovery installations for steel slag recycling, including converter slag and electric arc furnace slag.

## COMPOST OR ANAEROBIC DIGESTION

Contamination is an issue in the process and product quality for both anaerobic composting facilities and anaerobic digestion (AD) facilities. Our designs and machines offer the appropriate sorting techniques. Separation characteristics are weight, size, hardness, density, magnetism, electrical conductivity, and light refraction.



# SOLUTIONS WE PROVIDE

## MUNICIPAL SOLID WASTE

Municipal solid waste contains a large portion of valuable products, compost and high calorific materials (refuse-derived fuel (RDF)) that, once extracted by mechanical treatment or degraded by biological treatment, offers a wide range of new resources.

## COMMERCIAL AND INDUSTRIAL WASTE

By combining specific shredding, separating, and sorting technologies, Bezner realizes an installation with a high throughput to separate the materials in, for example, a high calorific fraction (RDF), residual components or recyclables such as metal, wood, paper, and plastics.

## PLASTIC RECYCLING

Bezner's innovative recycling process includes (color) sorting, cleaning, shredding, granulating, melting, and molding. We have many references in the plastic and PET recycling industry with high recovery and purity rates (90%-99%). We can act as your partner from the production and supply of customized or standard units up to complete turnkey customized pre-sorting systems and washing lines for plastic waste.

## SINGLE STREAM RECYCLING

At Bezner, we have developed the techniques to sort and separate mixed waste, or otherwise referred to as commingled waste. We offer tailor-made sorting, separating, and cleaning machines utilizing advanced technologies such as infrared sensors to handle single waste streams.



**MUNICIPAL  
SOLID WASTE**



**COMMERCIAL AND  
INDUSTRIAL WASTE**



**PLASTIC  
RECYCLING**



**SINGLE STREAM  
RECYCLING**



# SOLUTIONS WE PROVIDE

## BULK WASTE

Bulky waste refers to all the components which, due to their size and characteristics, are not accepted in the regular waste collection. For instance, large scrap metal items, large pieces of wood (e.g. furniture) and other large residual waste items. Utilizing our experience, Bezner has gained extensive knowledge to crush, screen and separate this high demanding material optimally.

## WASTE ELECTRICAL AND ELECTRONIC EQUIPMENT RECYCLING (WEEE)

The disposal rate of WEEE is accelerating and contains significant quantities of valuable materials such as metals (66%), precious metals, high-quality plastics (19%) and other components which can be profitably be recovered with our systems.

## PAPER AND CARDBOARD

The systems Bezner engineers and builds to separate impurities and process the used paper and cardboard can vary in configuration. You can think of installations to separate old corrugated containers (OCC) from mixed recyclables, or separate mixed fiber, containers, and fines by making use of the 2-D and 3-D characteristics of these materials.

## GLASS RECYCLING

With the combination of crushing, separating, sorting, and conveying technology, Bezner engineers a modern and profitable glass recycling installation for container glass, according to your requirements. Our installations recover any remaining metals during glass recycling and convert any type or variation of glass into high-quality raw materials for glass processing industries.



**BULK WASTE**



**WASTE ELECTRICAL AND ELECTRONIC  
EQUIPMENT RECYCLING (WEEE)**



**PAPER AND  
CARDBOARD**



**GLASS RECYCLING**



# SOLUTIONS WE PROVIDE

## CONSTRUCTION AND DEMOLITION WASTE

Bezner engineers customized installations to separate the profuse mixture of materials in recyclables and non-recyclables. It is our experience that the combination of our in-house developed conveyors, linear vibratory screen, air separators (or air classifiers), and many other devices builds an optimal functioning installation.

## BOTTOM ASH

Bottom ash contains a high quantity of valuable metals. With a particular combination treatment of separating and conveying, valuable metals such as gold, silver, tin, copper, and aluminium can be retrieved and reused as raw materials. Also, bottom ash is processed as recycled aggregates in, for example, concrete and the foundation of roads and highways.

## WASTE TO FUEL

When waste cannot be averted or recycled, recovering the energy content of combustible waste is in most cases preferable to landfilling. This waste is collected from industries, shops, construction sites, and households and is used for generating heat and electricity. We provide the most advanced systems for the preparation of Refuse Derived fuels (RDF) and Solid Recovered Fuels (SRF).

## ORGANICS

Most organics recycling separation processes require the separation of one type of material from a mixture of many materials. Bezner designs and manufactures turnkey treatment installations including shredders, drum screens, vibrating screens, separators, conveyors, and storage bunkers.



**CONSTRUCTION  
AND DEMOLITION  
WASTE**



**BOTTOM ASH**



**WASTE TO FUEL**



**ORGANICS**



# PRODUCTS



## VIBRATING SCREENS



## VIBRATING FEEDERS



## SHREDDERS



## SCREENING DRUMS



## AIR SEPARATORS



## OPTICAL (NIR) SEPARATORS

## VIBRATING SCREENS

According to the sieving characteristics of the material stream that differ in, for example, weight, shape (2D/3D, round or square) and density, Bezner engineers vibrating screens. We supply both linear vibratory screens and circular vibrating screens, equipped with single or multiple decks.

## VIBRATING FEEDERS

A vibrating conveyor or vibratory feeder, which are other names for the same principle, create solutions for a continuous flow of material streams, precise dosing, bulk conveyance at adjustable speeds, or extract bulk materials from silos, bunkers, and hoppers.

## SHREDDERS

Our shredders for size reduction have been designed for the most demanding and high throughput applications in recycling industries. The designs can be configured with special wear protection and knives, depending on the application.

## SCREENING DRUMS

Screening drums find their application in classifying, size splitting, and pre-sorting waste in a waste management plant, recycling plant or compost plant. Bezner's designs vary in length and/or drum diameter, and the shape and mesh of the holes in the drum.

## AIR SEPARATORS

Using an airflow, the materials from one stream are separated into various streams depending on the size, shape, and weight of the particles. An air separator is ideally installed to pre-separate the lighter materials, for example, paper, foil, plastic dust, and plastic film, from the heavier materials.

## OPTICAL (NIR) SEPARATORS

Regarding the supply of process installation for materials recovery facilities (MRFs) or plastics recovery facilities (PRFs), we have many references to share with you showing the optimal recovery of plastics.



# PRODUCTS



## FERRO SEPARATORS

A large industrial ferro separator with a conveyor belt system, shown in an outdoor setting with a pile of material being processed.



## NON FERROUS SEPARATORS

A large industrial non-ferrous separator with a conveyor belt system, shown in an outdoor setting with a pile of material being processed.

## FERRO SEPARATORS

Our Ferro separators are used for the continuous removal of ferromagnetic (Fe) particles from material streams. We provide effective solutions such as overbelt magnets, or overband magnets, and magnet head rollers in belt conveyors. Effectiveness varies from 70 to 90% deferrization and can be increased to higher levels through the use of multiple magnetic separators in series.

## NON FERROUS SEPARATORS

For the separation of nonmagnetic (non-ferrous) metals we design and install eddy current separators. With our expertise and experience in design of a wide range of material recovery systems, we have the key to maximize the efficiency of the non-ferrous separation in your process.



## CHAIN CONVEYORS

A large industrial chain conveyor system, shown in an indoor setting with a green frame and yellow safety railings.



## BELT CONVEYORS

A large industrial belt conveyor system, shown in an indoor setting with a blue frame and a conveyor belt carrying material.

## CHAIN CONVEYORS

The advantage of including a chain conveyor to your installation is that this type of conveyor is particularly suitable for moving heavy loads. In some cases, the belt and its infeed hopper are used for temporary storage of materials.

## BELT CONVEYORS

At Bezner, we are experienced in engineering a wide range of customized solutions, including a belt conveyor system that feeds, discharges, distributes, doses, accelerates, or a combination of these within the recycling industry.



## PLATE CONVEYORS

A close-up view of a plate conveyor system, showing the heavy-duty metal plates and the drive mechanism.



## BUNKERS AND HOPPERS

A large industrial bunker and hopper system, shown in an indoor setting with a blue frame and a hopper for material storage.

## PLATE CONVEYORS

A plate conveyor renders one of the most superior conveying technologies for sharp-edged or high-density materials that have a significant impact when landing from height on the conveyor surface or heavy weight during temporary storage.

## BUNKERS AND HOPPERS

Many waste handling processes require a temporary storage solution, a buffer storage for feeding a production system or transloading. Bezner designs and supplies customized storage systems such as hoppers, bunkers, and silos.



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**1978**

**FROM CONCEPT TO INSTALLATION**  
ENGINEERING, MANUFACTURING AND  
INSTALLATION OF RECYCLING AND BULK  
MATERIAL HANDLING SYSTEMS



**1997**

**EXPLOITATION OF OPERATIONS**  
COAL WASHING PLANTS  
DRY BULK PROCESSING PLANTS



**2000**

**ENGINEERING & PRODUCTION**  
BULK MATERIAL HANDLING AND  
RECYCLING EQUIPMENT



**2006**

**WASTE MANAGEMENT SOLUTIONS**  
TURNKEY RECYCLING, WASTE SORTING,  
MATERIAL RECOVERY AND PROCESSING  
SYSTEMS



**2009**

**PLASTIC RECYCLING SOLUTIONS**  
PRESORTING SYSTEMS AND WASHING  
LINES FOR PLASTIC RECYCLING FACILITIES



**2010**

**ENGINEERING & PRODUCTION**  
RECYCLING MACHINERY, BULK HANDLING  
SYSTEMS, WOOD PROCESSING  
MACHINES AND HEAT EXCHANGERS




**2011**

**PLASTIC RECYCLING SOLUTIONS**  
PRESORTING SYSTEMS AND WASHING  
LINES FOR PLASTIC RECYCLING FACILITIES  
IN NORTH AMERICA





**2011**

**MIXING TECHNOLOGY**  
INDUSTRIAL MIXERS WITH CAPACITIES UP  
TO 75,000 LITERS AND SCREW  
CONVEYORS FOR POWDERS AND PASTES





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**2017**

**BOTTOM ASH RECYCLING SOLUTIONS**  
ENGINEERING, MANUFACTURING AND  
INSTALLATION OF BOTTOM ASH  
PROCESSING, NON-FERROUS AND  
FERROUS RECYCLING SYSTEMS




**2015**

**NON-FERROUS RECYCLING AND FERROUS  
METALS RECYCLING**  
MATERIAL RECOVERY FACILITY (MRF) FOR  
METALS AND NON-FERROUS METALS FROM  
WASTE INCINERATOR BOTOM ASH AND  
REPROCESSING OF NON-FERROUS MIX




**2015**

**HEAT EXCHANGERS**  
ENGINEERING AND PRODUCTION  
OF HEAT EXCHANGERS AND HEAT  
TRANSFER SOLUTIONS




**2015**

**ELECTRICAL SOLUTIONS**  
ENGINEERING, SUPPLY, IMPLEMENTATION  
AND OPTIMIZATION OF COMPLETE  
ELECTRICAL SYSTEMS




**2014**

**WASTE MANAGEMENT SOLUTIONS**  
TURNKEY RECYCLING, WASTE SORTING,  
MATERIAL RECOVERY AND PROCESSING  
SYSTEMS FOR FRENCH MARKET



**2012**

**WOOD PROCESSING SYSTEMS**  
MACHINES AND COMPLETE SOLUTIONS  
IN THE SAW MILL INDUSTRY



**2011**

**WASTE MANAGEMENT SOLUTIONS**  
TURNKEY RECYCLING, WASTE SORTING,  
MATERIAL RECOVERY AND PROCESSING  
SYSTEMS FOR NORTH AMERICAN  
MARKET



**HEILIG  
GROUP**

COOPERATION WITH OUR ASSOCIATED  
COMPANIES OF THE HEILIG GROUP  
OFFERS CUSTOMERS A BROAD ACCESS  
TO THE GROUP-WIDE KNOWLEDGE IN  
THE INDUSTRIAL TECHNOLOGY  
LEADING TO FURTHER INNOVATIONS





# **WORKING TODAY FOR TOMORROW'S WORLD**



**HEILIG  
GROUP**

**SOLUTIONS FOR UNIQUE INDUSTRY NEEDS**