

环境产业制造商和先驱者

Environmental Industry Manufacture and Pioneer

QUN FENG

PEAKS-ECO | Waste Recycling System



Qun Feng Manufacture

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Judging the beauty of heaven and earth

-- analyzing the theory of everything.

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Dezhou Qunfeng Machinery Manufacturing Group, located in the east of Ningjin economic development area of Dezhou Shandong, is a high-tech enterprise dedicated to manufacturing and operation of environmental sanitation equipment, weighing product and steel structure. In the environment industry, we mainly engage in research, manufacturing and sales of hydraulic products such as waste transfer equipment. The company is well placed for excellent environment and convenient traffic. It was first established in 1997 with 100 million yuan of registered capital. Currently it covers an area of 88,000 square kilometers with 500 million yuan of fixed assets and has more than 560 employees including 560 with senior title and 85 technical personnel.

On the basis of the introduction of foreign advanced technology,Dezhou Qunfeng Machinery Manufacturing Co.Ltd.has made a lot of research on China's urban garbage composition and garbage clearance units,developed garbage sorting and compression assembly line equipment and accessory products,which is more suitable for China's national conditions.

Before the compression and transfer of garbage,auxiliary measures are developed,including bulky waste crushing,domestic waste sorting,recycling,classification,and packaging of waste materials.Bulky wastes such as furniture and electrical appliances can be packaged after being sorted and classified through the bulky waste crushers. Waste compression and sorting assembly line equipment is high-tech content products with mechanical and electrical integration. First-class design concept and manufacturing process are adopted to provide improved configuration and reliable performance.At the same time,this equipment adopts the domestic pioneering waste sorting assembly line and garbage compressor docking technology,which enables the waste transfer station with the operation mode of integrating garbage collection,sorting,compression and transfer,and improves the recycling of waste resources,so as to improve the economic,environmental and social benefits of the waste transfer station,and to adapt to the social needs of waste recycling and the development concept of recycling economy and sustainable scientific development.



Harmony between human and nature

Ecological development

Win-win

Our culture

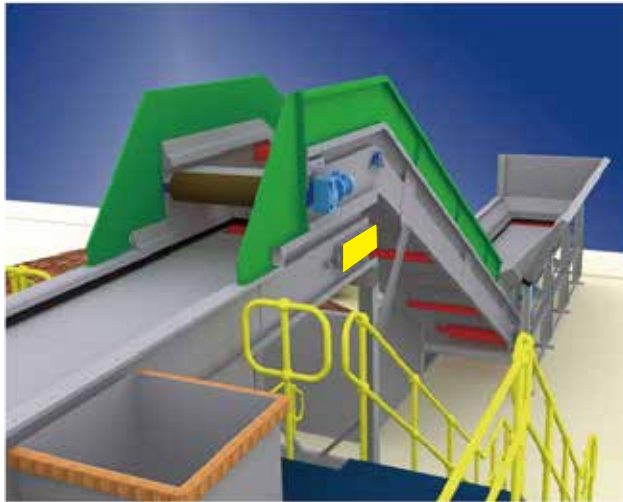
At Qunfeng, “Harmonious, Ecological and Win-win” is the basic concept of our culture. We consider it to be not only our meaning and motivation as a environmental industry enterprise, but also our responsibility and obligation.

Inspired by Chairman Jinping Xi and Premier of the State Council Keqiang LI in their speeches, Qunfeng has been insisting on ecological and sustainable development in order to lead a ecological bussiness style and contribute to the world.

Reverence for nature and reverence for life.



Qunfeng Metering Bin Feeder



The Qunfeng Metering Bin Feeder can be a part of the automatic bag open and waste feeding system.

Bagged recyclable material is loaded over the side of the hopper onto bin floor. The bin floor will move material at a rate set by the PLC controls to allow accurate metering of the material. The bagged material is guided onto the metering chain conveyor or under the bag opener.

The Qunfeng Metering Bin Feeder also provide numerous features that increase performance and decrease maintenance requirements. Qunfeng has developed a strong platform to precisely regulate material flow through the combination of a variable

speed conveyor and a counter-rotating drum at the discharge end, eliminating black-belt and keeping your system operating at peak levels. The new design's hallmark is its modularity: the design allows a wide range of mix-and match features which can transform the Metering Bin feeder to match your own operational demands. From base features such as extra thick walls to the steel belt and bag-ripping teeth of the Liberator Class, Qunfeng offers a special waste feeder without equal in the market.



Characteristics and Advantages:

- Increases throughput and system capacity up to 20%
- Provides a consistent material feed into the system
- Maximizes system sorting and screen efficiency
- Frees up loader operator to perform other tasks
- Reinforced side-wall panels and heavy duty construction to maximize durability and uptime
- Easy retrofit into existing facilities
- Available with 60-HP driven drum to power through the toughest loads
- Reinforced load side and flared back walls for ease of loading and durability, with minimal spillage



Qunfeng Bag Breaker

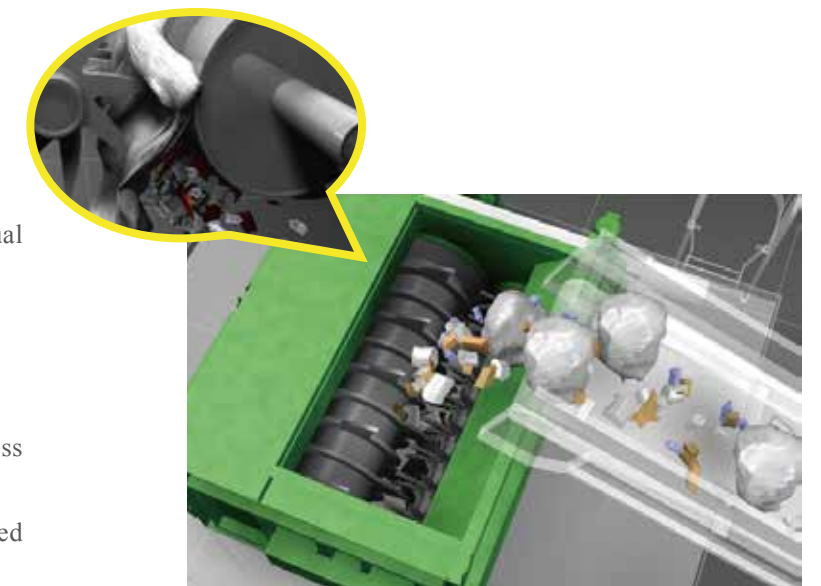
The Qunfeng Bag Breaker is a highly effective bag-opening technology that eliminates the need for manual bag openers, it is to split open the bags of MSW(Municipal Solid Waste) and supply the MSW to the waste treatment system continuously. Several years of product development led to the innovation of this patented system. The machine is available as a standard model or in combination with a charging hopper. The hopper is fed batchwise by a front loader. Bagged material is fed into the Qunfeng Bag Breaker with an in-feed conveyor to achieve an evenly-metered flow rate. Large, counter-rotating drums effectively open the bags and release the contents, which are discharged from the bottom of the machine. The Qunfeng Bag Breaker is designed to process the materials without damaging the commodities.

Feeding the waste after opening the bags and in continuous volume are very important for the forthcoming screening machines to achieve the high efficiency and purity output materials in MRF (Material Recovery Facility). MBT facility (Mechanical Biological Treatment) also uses the bag splitter along with the crusher for supplying the waste to the system continuously, and RDF process also uses the bag breaker as a bale breaking system.



Characteristics and Advantages:

- Higher processing capacity than manual sorters
- Low maintenance and operational costs
- Easy to retrofit into existing facility
- Does not damage bagged contents
- Clean-out doors on two sides for easy access and maintenance
- Heavy-duty construction for decreased downtime and long operating life



Trommel Screen



The rotating trommels are installed upstream of installations of selection municipal solid waste and maintain the screening of MSW exploiting the different size from they possess. They have the function of separating the

feed stream into two streams. The separation of the individual parts placed in a current of fall, properly fed, takes place according to the different particle sizes.

In this phase, trommel screen is to sort the waste by hole size of the long drum. Different sizes of the holes are sorting the materials of different types (less than 80mm for Inerts like sand, broken glass, ceramic and stone, 80mm to 200mm for recyclable plastics and 200mm to 300mm for paper and big plastics.). The individual parts behave separately parts having sizes lower than the diameter of the holes of the network sieving fall to the bottom of the machine, the parts having size greater than the diameter of the holes' network sieving advancing upwards of the machine, following the rotational movement, in the direction of exit and fall into the discharge hopper arranged to the surroundings great.



Characteristics and Advantages :

- Sorting different sizes by the drum holes
- Sorting different sizes by the drum rotating speed
- Excellent sorting for organic materials from mixed wastes
- Separating wastes of large size
- Sorting inerts of small sizes
- Cover for dust prevention
- Side door for easy maintenance
- Suitable pretreatment for Automatic Sorting Machine Line

The rotary screens are produced in different sizes which can are:

- VT 1.800 X 7.000 mm
- VT 2.000 X 8.000 mm
- VT 2.500 X 9.000 mm
- VT 2.500 X 12.000 mm

Qunfeng disc screen Separator

System for Separating Inert and Small Contaminants by the Openings between Discs

The disc screen consists of rotating discs for separating wastes through the clearance between the discs depending upon the size and the weight of the waste while the wastes move on the rotation discs.

10 to 20 discs are mounted on a long shaft depending on the working width of the screen. And the number of the shafts are depending on the capacity of the screen. These shafts simultaneously rotate by the driving force of the motor. The screen holes of other size screens are easily clogged by wet wastes due to moisture. The disc screen minimizes the clogging by the rotation movement of the discs.

The disc screen consists of the rotating discs for separating wastes depending on the size and weight, the blower for separating combustible wastes, and the contaminant discharge system for glass pieces and small wastes, the rotation discs are made in various configurations such as pentagonal, octagonal, and star shapes.

The disc screen with these characteristics is capable of separating contaminants, dusts, combustible and incombustible wastes, and popularly applied in the waste treatment industry for separating the non-sanitary landfill site wastes and mixed industrial wastes. They can also be used on other types of systems, such as municipal solid waste, fiber sorting facilities and other streams that contain fibers. These separators are available with single, double, or even triple screening decks depending on application.

Characteristics and Advantages :

- Effectively prevent wet garbage from blocking mesh
- Maintenance and repair costs are low.
- According to different requirements, different types of sieve trays can be replaced and installed, and the operation is convenient.
- Effectively screen out organics from waste mixes.
- Modular design, easy maintenance and repair.



Ballistic Separator (Cooperate with BRT)

Ballistic separator is to separate materials to the top zone and the bottom zone of the rotating paddles depending on the apparent shapes and characteristics of materials. The screen is capable of separating various materials such as plastics from cardboards, papers and films. Ballistic screen makes use of gradability unique to each material to separate one material from other materials. The screen is excellent in separating light materials such as film from rolling materials (such as bottles, cans, etc.). Materials with 3D shape are bounced from the ballistic paddles of the screen to the bottom of the screen. Materials with 2D shape such as film and paper climb up to the top of the paddles of the screen at different speeds in accordance with the gradability of materials. In this way, you can control the purity of the separated materials by adjusting the angle of the rotating paddles of Ballistic Screen.



Characteristics and Advantages :

- Constant performance with all steel screening surface
- Reduces operating & maintenance costs
- Versatility: enables processing of different material streams within a single system
- No wrap design minimizes cleaning & maintenance costs
- Easy and safe maintenance
- Single motor and direct drive system reduces maintenance and energy costs
- Angle adjustment (optional)



Separated materials:

Flat and light 2D:

Film, Paper, Cardboard, Textiles and fibrous materials

Fines:

The material will be separated dependant on the particle size and the diameter of the paddle perforations

Rolling and heavy 3D:

Plastic Containers, Bottles, Stone, Wood, Cans and Ferrous materials

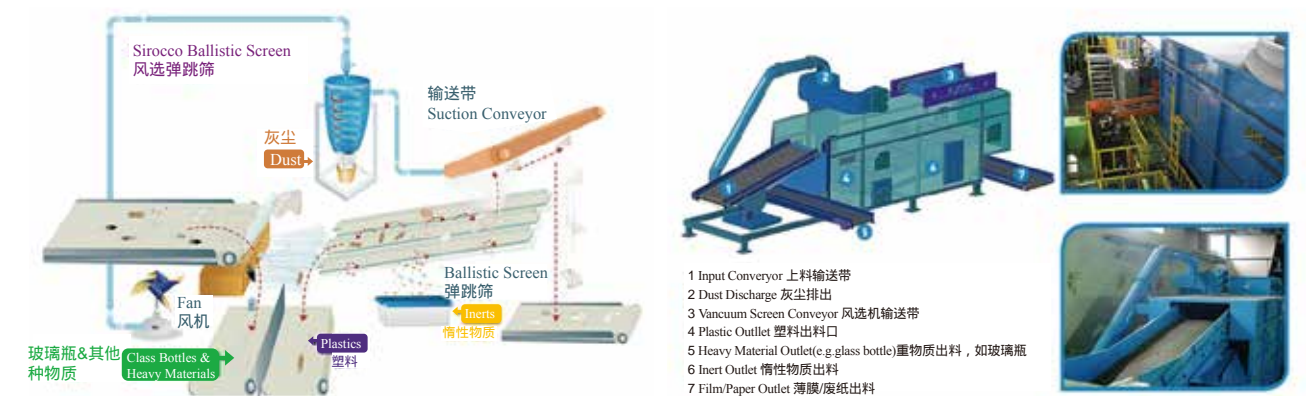
Air & Ballistic separator

Combination of Air separator and Ballistic Separator. Air & Ballistic separator is a hybrid screen with the advantages of the Air separator and the Ballistic Screen.

Air & ballistic screen is to separate the plastic materials with shapes (3D) from the paper and film materials (2D) depending on the paddle design after sorting out glass bottles, and frequently used at MSW. Wastes stream fed by the conveyor are processed as follows: heavy weight materials are first separated by the air shifting, and light weight materials are put into the ballistic screen, the materials with 3D shape (e.g., PET bottle and milk bottle) are bounced and moving down to the lower part of the paddles by the low gradability. On the other hand, paper and film materials with 2D shape are separated by climbing up the paddles at different speeds according to their gradability. Dust blown by the wind of the blower during the air shifting are absorbed by the vacuum screen conveyor mounted on the ceiling of the ballistic screen and collected by the cyclone.

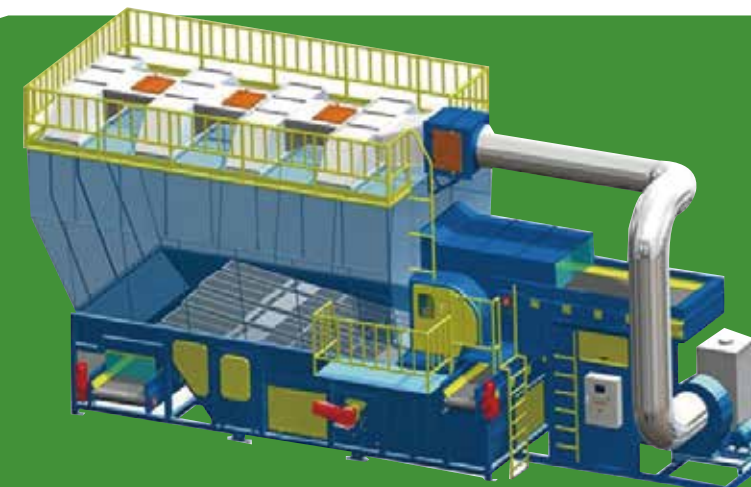
Small size impurities are discharged below the screen through the holes of the ballistic paddles. The air polluted during waste separation is absorbed and purified by a cyclone system, and dusts are separately discharged to perform air purification function, which helps improve the environment of the work site and reduce air pollution.

Air & Ballistic separator is installed on the subsequent process of the bag splitter to separate the waste stream to five categories such as 1) glass bottle, and PET bottles containing water, 2) plastic containers, 3) paper and film, 4) inert and 5) dusts to maximize efficiency of the recyclable sorting line.



Characteristics and Advantages :

- Excellent separation capability by gradability
- Preventing airborne dusts by air-circulation design
- Improving the efficiency of subsequent processes
- Separating inert by ballistic paddle hole design
- Sorting Five Categories In creasing throughput by 50% com



Drum Air Technologies

Drum air technologies use controlled air to efficiently and reliably separate waste by its density characteristics. These units are at the core of our patented MSW sorting process, and are used to liberate the lighter (and higher value) products from inert and contaminated materials. When applied to C&D recycling, this technology can dramatically increase your recovery of smaller material fractions by providing two or three streams of highly concentrated products.

Available in multiple sizes and configurations, we can custom tailor an equipment package to your sorting needs.



Characteristics and Advantages :

- Remove unwanted materials to protect machines further on in a separation process (e.g. shredders, granulators).
- Guarantee high separation efficiency (95-99%).
- Proven installations around the world
- Highly flexible separation
- Versatile and reliable



Single Drum Air Separator consists of a recirculation fan, a separation section with a rotating drum and a connecting expansion chamber. It's the best separating solution based on density of the material at capacities up to 100 tph of input and up to 25 tph of separated light fraction.

Qunfeng Air Separator



System

System to use the Gravity of Wastes with Air. Air Shifter is to separate wastes according to the gravity by blowing air onto the waste stream.

Waste stream is supplied into the separator by a conveyor, and heavy wastes with solid shape such as glass bottle and plastics are dropped to the bottom of the separator. Glass Bottles First, Plastic Bottles Second and Light Wastes such as film and paper are blown by air stream from the blower, and separated by the vacuum drum or screen conveyor inside the separator. Dusts are collected by the cyclone and the air is circulated inside the screen.

The jet pressure and the volume of wind from the blower are adjustable, and you can optimize the sorting efficiency and purity depending on the separation purpose to sort glass bottles, plastics, cans, films and papers. Cyclone can absorb and purify the polluted air during the waste separation process, which will improve the workplace environment and reduce the air pollution.

Air Separator is typically installed right before the automatic sorting machines of MRF (Material Recovery Facility) or MBT (Mechanical Biological Treatment) to sort out the film, paper and dust for high efficiency and purity of Automatic Sorting Machines.

Characteristics and Advantages :

- Separating materials of various gravities air volume
- Effectively separating heavy wastes (Glass Bottles)
- Improving workplace environment by dust collection and air circulation through the cyclone
- Excellent absorption drum and screen for selecting film, paper and dust
- Sorting in Four Categories



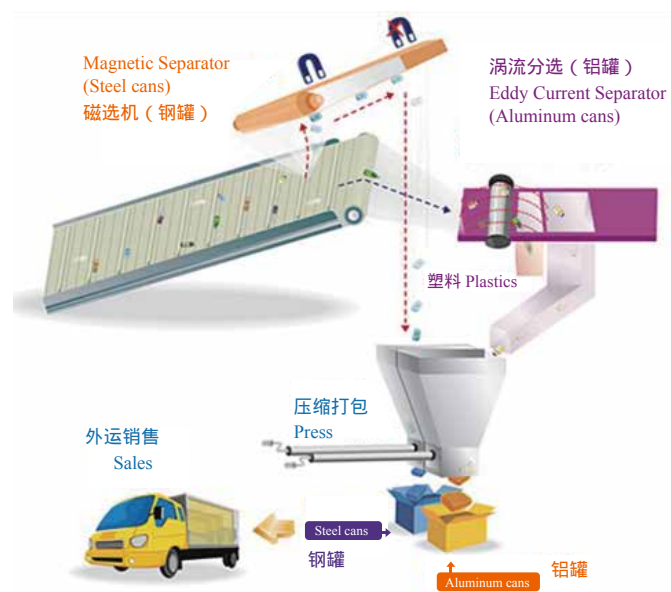
Magnetic Separator

System to Separate Ferrous Metal by Magnet

Magnetic Separator is to separate ferrous metal from wastes by permanent magnet which does not need the electrical power. The conveyor rotates around the large permanent magnet to separate steel wires, nails and gas cans moving on the conveyor. The body of the separator is of a non-magnetic structure made of steel. Which prevents ferrous items to be attracted to the body of the separator.

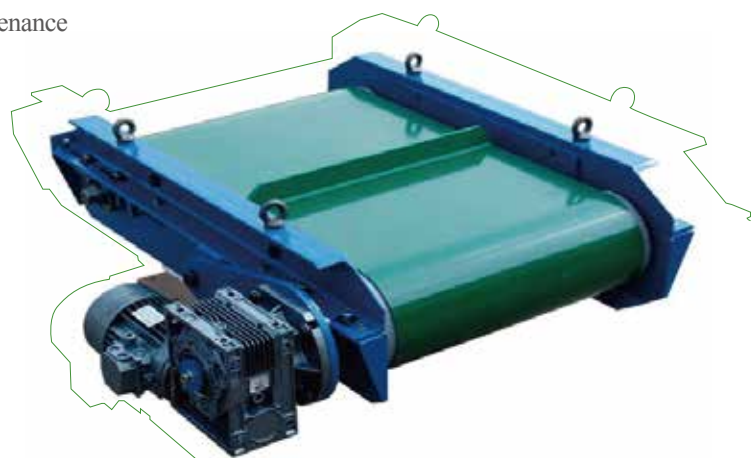
In addition, the separator is designed in such a way that foreign materials are not stuck inside the conveyor belt to reduce abrasion of the belt, and to minimize maintenance.

Magnetic Separator is installed in the sorting lines of MRF, MBT, cement, iron-making and mining industries to separate ferrous metals from various

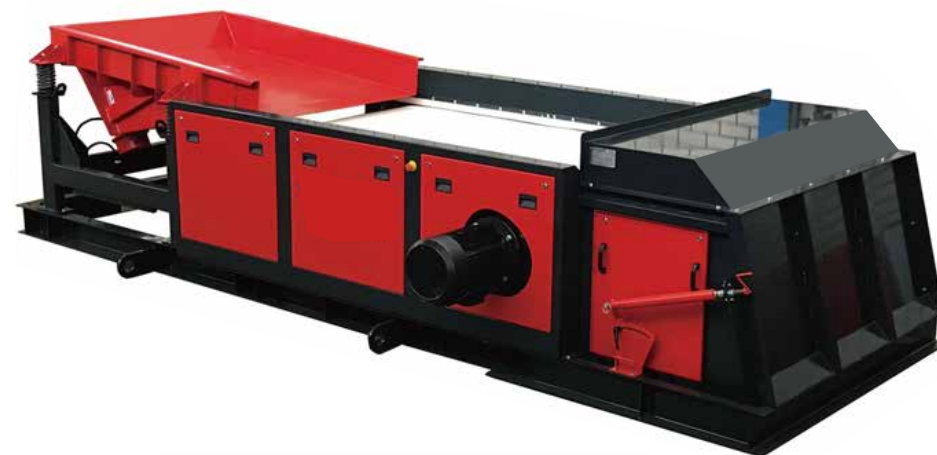
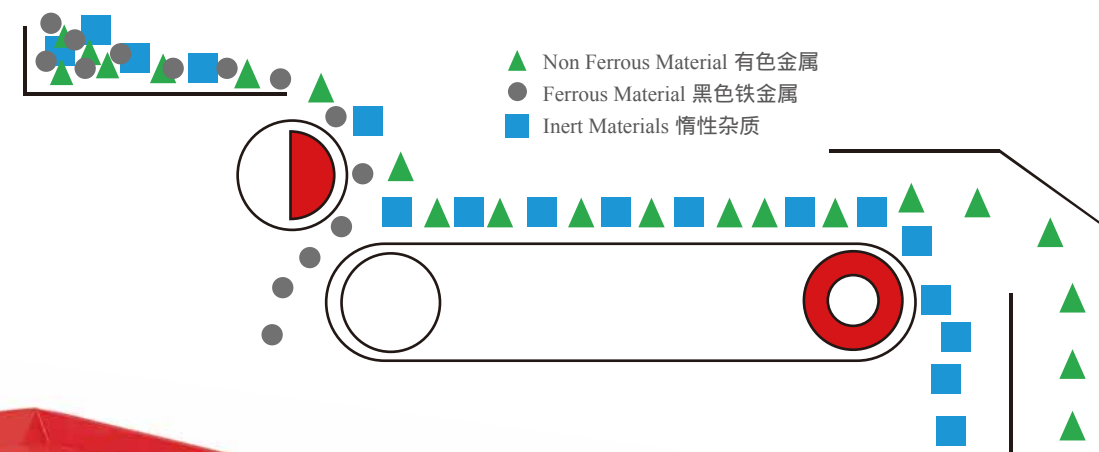


Characteristics and Advantages:

- Non-magnetic frame
- Excellent Separation Efficiency
- Roller bearing protection device
- Belt abrasion preventive structure
- Easy for maintenance



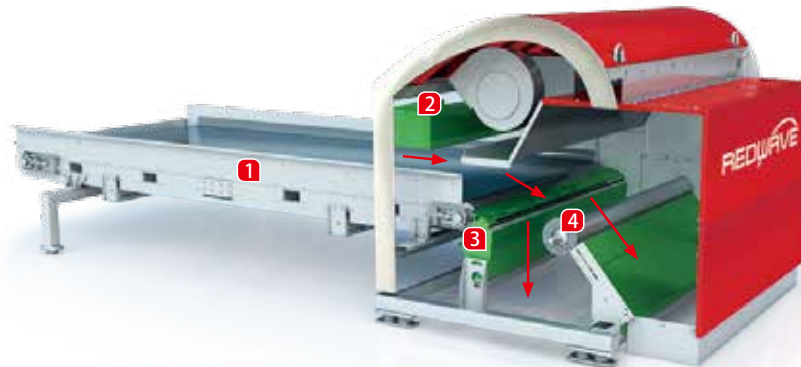
Eddy Current Separator



Eddy Current Separator (Non-Ferrous Separator) is to separate non-ferrous metals by the induction principle (eddy current) of a high-frequency magnetic field. The powerful moving magnetic field on the surface of the drum is generated when the powerful permanent magnet inside the drum rotates at high speed, separating three types of materials: iron, non-metal, and nonferrous metals such as aluminum and copper. The permanent magnet drum of high capability rotating inside the conveyor belt at high speed induces the eddy current in non-magnetic nonferrous metals moving on the drum to generate a magnetic field. This force is exerted in the opposite direction to gravity, and nonferrous metals bounce off by repulsive power from mixed wastes during movement on the conveyor belt. Non-Ferrous metals with larger surface areas, lighter weight and higher conductivity are usually well separated. The separator requires virtually no maintenance and guarantees the stable separation for long-term operation. The Non-Ferrous Separator is installed together with a permanent magnetic separator on MSW to play an important role for sorting waste.

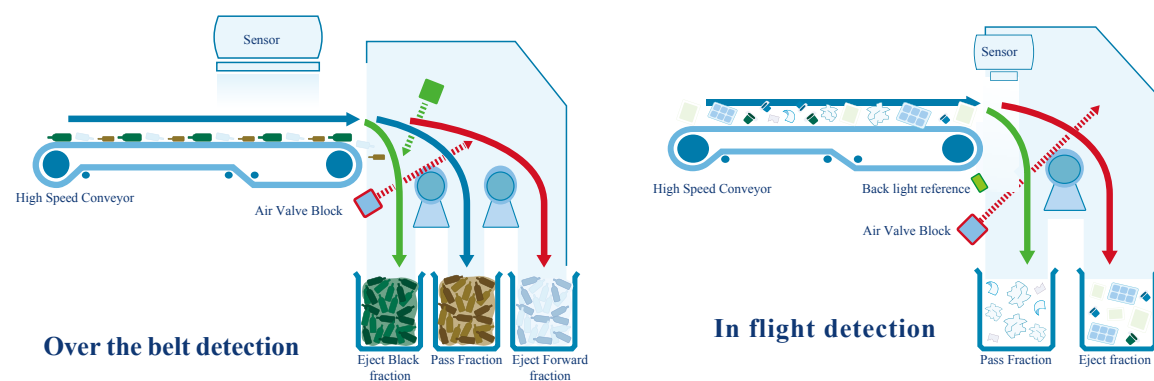
Option Sorting System

- 1 Acceleration belt conveyor
- 2 Sensor and light source
- 3 Ejection unit
- 4 Driven divider idler



Optical Sorting Machine recognizes and sorts Organic Material by analyzing the reflected NIR (Near Infra Red) lights from the surface of the material. Every organic compound absorbs light of its own wavelength depending on the molecular nature of the materials. Accordingly, the machine provides a function to recognize the materials by optically analyzing the wavelength of the reflecting light, and it converts the light value into an electric value by making use of a photo diode. A camera detects the light reflecting from the waste stream on the conveyor on which the light from a halogen lamp shines. The detected light is converted into an electric signal by a spectroscope, and then into computer data. The computer analyzes the data to identify the materials in the waste stream. The computer uses compressed air to move the wastes to defined locations after precisely identifying the materials in the waste stream. Optical Sorting Machine sorts wooden materials, plastics of different kinds, paper, cardboard, ferrous and nonferrous metals and can separate them according to the material and color through the advanced optical technology using near infrared (NIR), mid-infrared (MIR) and visible light. One of the advantages of the Optical Sorting Machine is the material recognition adjustment when the waste is physically composed of various materials just by adjusting the program. For example, you can pick out only PET by setting the program to hardly recognize or not to recognize PE cap or PP label of a PET bottle.

Optical Sorting Machine provides the optimal solution for learning and recognizing the types and characteristics of materials according to consumption behaviors, and for sorting wastes according to the practices and the regulations of waste treatment in local areas or countries. Optical Sorting Machine is installed on the automatic separation lines of the MRF, MBT, RDF, and PET sorting to sort and supply wastes by material and color to play an important role for recycling and fuel generation from waste stream.



Baler

Baler is to reduce the volume of recyclable materials and produce compressed bales by using the powerful force of hydraulic cylinder. Baler is popularly used for continuous compression of wastes with recyclable value such as paper, cardboard and plastics; drum baler used for continuous compression of PET bottles, paper and cardboard. Automatic control by PLC and tight wire coupling can help produce tightly compressed bales and provide users with the convenient and safe operation. The compressed bales allow the users to have more storage space and transportation highly economical. Baler is typically installed on the final discharge section of MSW system. Our baler can support FDY-850 and FDY-1250 semi-automatic baler and full automatic baler. And we can also custom tailor a baler machine to your sorting needs

Characteristics and Advantages:

- Powerful compression by hydraulic motor
- Continuous compressing
- Hydraulic door mode for the safety
- Easy to maintain compression ram
- Automatic wire connection
- Easy operation with PLC



Qunfeng Shredders

The shredders are useful machines for the volume reduction of bulky waste such as reams of paper, paper materials, bumpers, tires, refrigerators and the shredding of different materials such as scrap iron, aluminum, copper, plastic as well as municipal solid waste and industrial waste.

The application of shredders is essential for eco-centers, landfills, wrecking and all the organizations that work in the field of waste management and recycling. Great efficiency and performance, sturdiness are the design features of our shredders. They are indicated in the treatment of any type of solid waste and come in a full range of models able to satisfy the different production requirements.

The low number of turns allows to reach very high torques with very low fuel consumption. The use of special steels for the blades guarantees particularly long life cycles, with considerable savings on spare parts. The unique blade allows optimal use of upstream sorting facilities or in the treatment of MSW.

Our technology allows you to make the most of each processing stage to obtain homogeneous products suitable for transport and undergo further processing: ideal for recycling resources, materials and energy.



Conveyor



System to Transport Wastes and Products with Power of Electric Motor. Conveyor is to transport materials and wastes on belts. The conveyor belt is made of textile, rubber, plastics, leather and metal, and the belt has the shape of a continuous loop to transfer objects. The belt is moved by the drive roller mounted on the bottom of the conveyor or at one end of the conveyor. The conveyor is moved at a defined speed by connecting a reducer to the motor.

The types of conveyors include chain conveyors, sliding belt conveyors and roller belt conveyors, and custom designs are available.

Conveyors are used for various applications such as the logistics facility in warehouses, and process facilities such as MSW, MRF and MBT.



Characteristics and Advantages :

- High compatibility due to modular design
- Solidity from laser cutting construction
- Safety cover
- High performance SEW motor mounted
- Quality belt resistant to oil and grease
- Scraper mounted
- Fast belt moving speed up to 6m/s
- Various Width up to 2,000mm



Municipal Solid Waste (MSW)

Municipal Solid Waste (MSW), or household waste, consists of discarded everyday consumable items. This general waste is normally put into a black bag or bin and contains a mixture of wet and dry recyclables, organic, inorganic and biodegradable materials, including food waste,



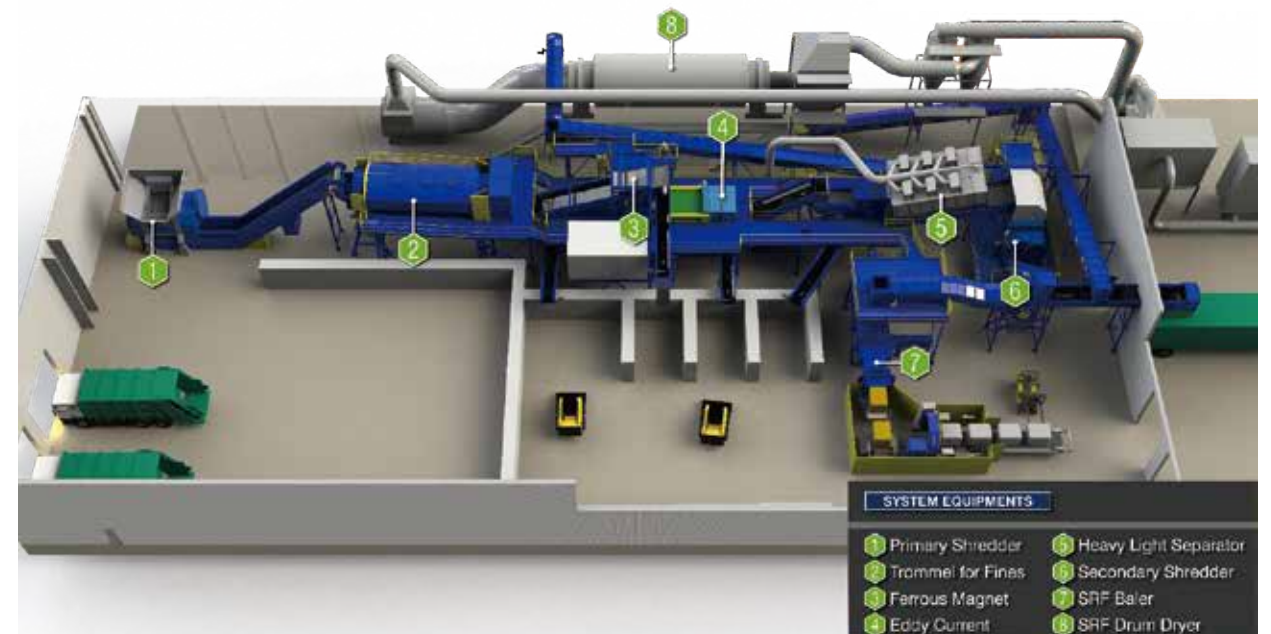
containers, cans, cartons, product packaging, newspapers and card.

As one of the world's leading system integrators, Qunfeng knows what it takes to separate MSW into valuable recyclables on the one hand and high-quality RDF (Refuse Derived Fuel) on the other. With increasing regulatory pressure on landfilling untreated MSW and the active search for alternative energy sources, energy-from-waste has become an important solution.

At Qunfeng, we build high-end turnkey installations that focus on recovering both valuable recyclables and energy from MSW. The purpose of the installation is to separate, sort and process valuable commodities, such as RDF, plastic containers, PET, Tetra Pak and glass, along with minimising the waste fraction that is sent to landfills.



Waste To Energy



Qunfeng customers are able to produce high-value Refuse Derived Fuel (RDF) from the combustible components of municipal solid waste (MSW). The waste is shredded, dried and baled and then burned to produce electricity, thereby making good use of waste that otherwise might go to landfill. MSW and commercial & industrial (C&I) wastes are increasingly seen as a resource, largely driven by legislation and the increasing scarcity of some materials.

As the input of most MSW and C&I waste varies, it is essential for reliable systems to be able to handle various input streams with control of the calorific value and size of the RDF output. The system must also be well equipped to recover the valuable commodities, such as plastics from the waste stream. Differences in physical properties, such as the size, shape, density and weight of different objects allows ferrous and non-ferrous, plastics, glass, stones and fines to be effectively separated from the wastes. These valuables are then fit for reuse. This is why Qunfeng provides customer-specific solutions, which enable you to be versatile to optimise profitability.

We are well aware that performance is key, which is why Qunfeng's waste processing systems have an excellent track record of low downtime. They also give you full control of the calorific value and size of the RDF output, so that you can provide your customers with on-spec RDF.

The flexibility and performance of our bespoke systems makes us the partner of choice for major waste processing companies worldwide. We have been engineering, building and implementing sorting systems worldwide for more than 10 years, working in partnership with our clients to produce an excellent return on investment.



Single Stream Waste



While most EU countries and USA still have a policy that favors source separation, Single Stream Waste processing is increasingly becoming an alternative for recycling mixed MSW.

A single stream installation separates, sorts, and processes valuable commodities, such as newspaper, mixed paper, plastic containers, PET, Tetra Pak and glass, which are then baled and shipped for reuse.



Biogas Energy And Composting

Qunfeng is a high-tech company, which focuses on scale biogas projects, our business area includes food waste treatment plant, straw waste, pasture, alcohol plant, paper mill, food factory etc. Use organic waste as raw material for anaerobic fermentation to produce biogas. After pre-treatment (desulphurization, dehydration and dust purification etc.), biogas can be used as a clean fuel for CNG, or it can also be used for CHP.

Qunfeng's fermentation technology prevents ammonia inhibition in biogas production. This is done by adding one fermentation step, prior to biogas fermentation, as well as a nitrogen stripping unit. Qunfeng's patented microbiological innovation eliminates the nitrogen dilemma by turning problem waste into profitable recyclable goods. The technology can be applied to biogas plants of many different sizes, and unit operations do not require skills beyond normal biogas plant operations.

In 2008, Qunfeng began to construct the first biogas pre-treatment project. After 10 years of technical innovation and experience accumulation, Qunfeng has successfully constructed more than 10 projects. Until now, the biogas treatment capacity is 114,000 cubic meters, the installed capacity is 12MW, green power production has reached 375 million kWh and Qunfeng has reduced 1,29 million tons of greenhouse gas emissions. Qunfeng is a company with environmental protection and economic benefit.



国内外项目



Norway project 600 t / day



Mexico Oaxaca project 600 t/day



China Beijing Daxing project 600 t/day



China Shanxi project 300 t/day



Bio-energy and composting project 300 t/day



China waste to energy project 800t/day



China Beijing project 200 t/day



China Shanghai vertical waste transfer station project 500 t/day



Uzbekistan two project waste sorting system 300 t/day



China Jinan vertical waste transfer station project 1500 t/day



China Hebei project 1000 t/day