

SEEPEX.
ALL THINGS FLOW

YOUR PUMP SOLUTION **FOOD AND BEVERAGE** **WASTE HANDLING**



FIRST-CLASS WASTE AND BY-PRODUCT HANDLING.

MEAT, FISH AND POULTRY INDUSTRY

Including pumping of:

- Meat by-products
- Fish, whole or in pieces
- Meat and sausage waste
- Mechanically de-boned meat
- Poultry, whole or in pieces

FRUIT AND VEGETABLE INDUSTRY

Including pumping waste from:

- Apples
- Carrots
- Cherries
- Melons
- Onions
- Pears
- Potatoes
- Mango/mango stones
- Pineapple tops and peel
- Vegetable waste and stalks
- Salad

BREWERIES AND DISTILLERIES

Including pumping of:

- Brewers spent grain, distillers draff
- Spent hops
- Waste yeast
- Trub from breweries

Millions of people worldwide work in the production, processing and packaging of food and beverages. In the manufacturing process, trimmings, wash residue and by-products are a natural consequence of production. Additionally, waste may result from off-specification batches, overproduction and expired goods. This mixed waste, with different consistencies and subject to different disposal regulations, must be handled within the strict sanitary requirements of the food and beverage industry and meet local codes for discharge into sewers and/or landfills.

Since 1972, SEEPEX – a leading global specialist in pumping technology with progressive cavity pumps, macerators and control systems – has been rising to the challenge, providing a superior range of technically and economically optimized solutions for the food and beverage industry.

In particular, hygienically sensitive waste must be quickly and safely transported to an appropriate disposal system. Conventional methods such as manual handling in waste containers, using conveyor belts, compressed air systems or flumes are inefficient, dirty and costly.

SEEPEX pumps solve all these handling problems. Transfer of waste products through a closed pipe system is the optimal alternative – avoiding accidental contamination, contamination of the working environment, unpleasant odors and rising costs. SEEPEX pump systems take into account the most strict sanitary regulations, ensuring high operational reliability with ease of maintenance and innovative technologies.

Our modular system, consisting of a variety of market-specific product groups with high-performance ranges, enables a perfectly tailored solution for each application. For example, customized open hopper pumps with auger feed screws can cope with highly viscous and/or solids-containing products and product mixtures.

The BTM range with its cutting device in the compression area is ideal for many applications. It effectively chops the material and reduces the solids volume by up to 60%, resulting in substantial savings of transport costs. Even finer solids reduction is possible by combining macerators with SEEPEX pumps.

FOOD AND KITCHEN WASTE INDUSTRY

Including pumping of:

- Animal by-products
- Cooking oils and fats
- Dairy waste
- Deep-fried residue
- Dough residue
- Vegetable trimmings and waste
- Stale bread, bakery products and confectionary

In short: each pump is designed according to the unique requirements of the industry sector, application, production area and liquid.

Another SEEPEX advantage: First-class services throughout all stages of the pump life, which secures long-term value of the pump, ensures optimal operation and significantly reduces life cycle costs.

It's no wonder that SEEPEX pumps have become indispensable for processing waste and by-products in the food and beverage industry.



MEAT, FISH AND POULTRY INDUSTRY.

CONVEYED PRODUCT

- Meat, fish and poultry by-products
- Fish trimmings
- Whole reject chickens
- Carcass frames, heads
- Offal
- Blood

KEY SPECIFICATIONS

SINGLE PUMP FOR CHOPPING AND PUMPING

MACERATORS PRODUCE SPECIFIC PARTICLE SIZE

SANITARY ENCLOSED SYSTEM

COST SAVINGS

- Reduced energy
- Water treatment cost savings
- Labor costs reduced
- Waste volume minimized

BACKGROUND

Convenience products have become more popular in recent years. Growing demand has increased the need for fish or meat in the form of strips, cubes or chips. Consumers also demand 'ready to cook' meat, poultry and fish portions trimmed, de-boned and precooked.

TASK

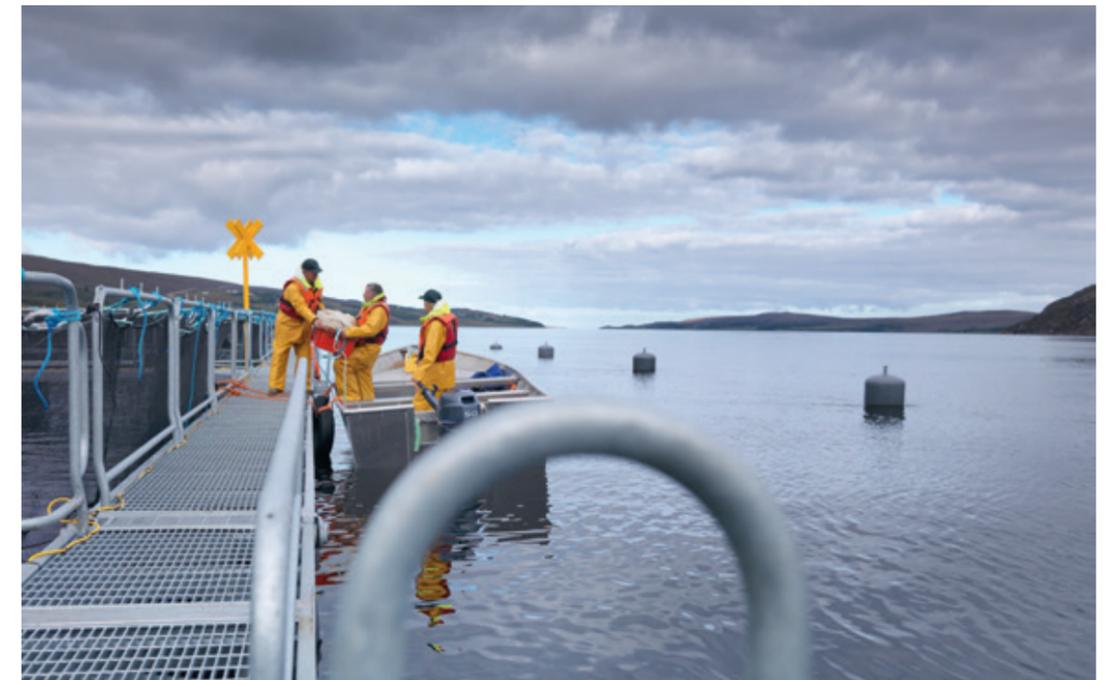
The necessary processing methods, just like traditional methods of filleting or portioning, create considerable quantities of waste. Residue consisting of offal, skins, heads or other parts must be removed from the production areas effectively and under stringent sanitary requirements. By-products such as blood, cartilage and fat – as well as waste and off-specification batches – need to be efficiently, cleanly and cost-effectively transported. Maceration or size reduction of the waste is beneficial for both governmental compliance and further use in pet food production or as fertilizer.

SOLUTION

SEPEX offers two technological solutions. First, the pumps of the BTM range come with an integrated cutting unit which chops and pumps in a single operation. Even entire birds, such as dead or off-specification chickens, can be easily pumped. Second, integrated systems with pumps and macerators combine chopped waste of all kinds into very small pieces. Solids, such as small bones or cartilage, can simply become part of the "flow" in the pumping process. SEPEX pumps make the manual, noxious and dangerous transport of food waste in open containers a thing of the past.

BENEFITS

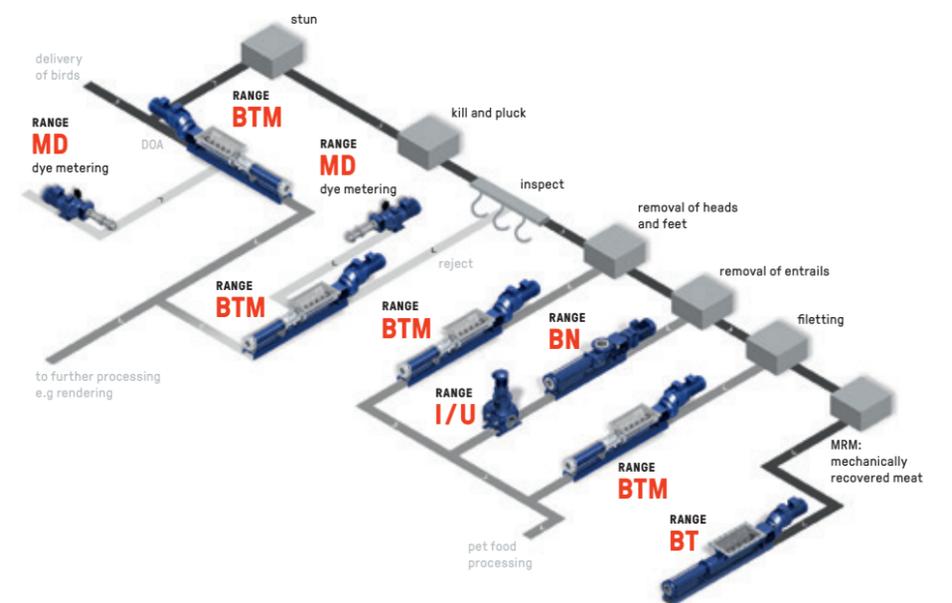
- Chopping, mixing and conveying of meat and fish waste in a single step without adding water
- Enclosed sanitary removal systems
- Low maintenance
- Low energy and water consumption
- Reduction of volume and subsequent disposal costs



POULTRY INDUSTRY FLOW CHART

APPLICATIONS

1. BTM range pumps chop and pump whole reject chickens
2. MD range pumps meter dye for poultry waste
3. BN range pumps remove blood from slaughter area
4. BTM range pumps chop and transport poultry parts and frames for further processing
5. BN range pumps fitted with Smart Conveying Technology and macerators chop/pump internal organs for pet food production
6. BT range pumps transport MRM for further processing



FRUIT AND VEGETABLE INDUSTRY.

CONVEYED PRODUCT

- Mixed fruit waste
- Mango pits/stones
- Pineapple tops and peels
- Vegetable waste and stalks
- Salad waste

KEY SPECIFICATIONS

SANITARY ENCLOSED SYSTEMS

VARIABLE WASTE HANDLED

ENGINEERED SOLUTIONS FOR FRUIT PITS/STONES

COST SAVINGS

- Labor costs reduced
- Automatic removal of waste
- Waste volume reduced
- Disposal costs reduced
- Lower costs compared to air blown, vacuum or water systems

BACKGROUND

The growth of convenience food has generated rapid growth in the production of both prepared vegetables and ready to eat salads and fruits. Increased production has led to increased automation and sanitation standards. Waste comes from washing, peeling and trimming operations. To remove this waste some plants use conveyor belts, some water flumes and others still use employees to transport open containers over long distances to collection containers. These methods have three common results: they are time consuming, dirty and expensive.

TASK

A wide variety of finished products may be produced by a single factory from different raw materials, with different textures and challenges. Pits and stones from fruit, peels from citrus fruit and salad trimmings are just some of the materials to be handled. Solutions must be able to handle these products and to make removal faster, more sanitary and above all, cost-efficient.

SOLUTION

The workhorse of this process is the SEEPEX BTM open hopper pump. The compact design allows for convenient positioning in the vicinity of the sorting, peeling and trimming stations. Waste is chopped by the integrated cutting system in the pump and then conveyed to the disposal container or dewatering systems via a closed pipe system.

Where more challenging by-products need to be transported, customized solutions utilizing vertical grinders, open hopper pumps and augers to prevent bridging prove valuable for a wide range of products.

Fruit and vegetable waste can be used as animal feed, compost, to generate biofuels or be reprocessed for sale as basic chemicals like limonene, starch or reagents. The pre-chopping of products using the BTM pump and the optional macerator reduces the volume of waste for more efficient transport.

BENEFITS

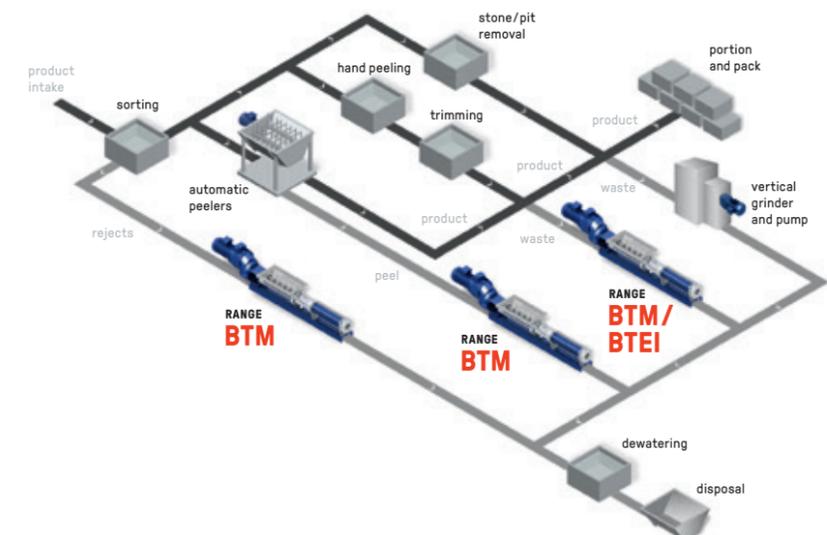
- Chopping and conveying in enclosed systems without the addition of water
- Removal of waste automatically from peeling machines
- Sanitary removal directly from high care areas eliminates unpleasant odors
- Reduction in manual handling improves health/safety



FRUIT AND VEGETABLE INDUSTRY FLOW CHART

APPLICATIONS

1. BTM range pumps chop and transport rejects from sorting systems
2. BTM range pump with level controls integrated into automatic peeling systems
3. BTEI range pumps with bridge breakers transport waste from hand peeled fruit and vegetables
4. BT range pumps with vertically mounted grinders chop and transport fruit stones/pits.
5. Macerators reduce the peel waste particle size for dewatering



POTATO AND SNACK FOOD INDUSTRY.

CONVEYED PRODUCT

- Potato peels, trimmings and waste handling
- Wastewater with entrained solids
- Starch recovery
- Sludge from decanters and centrifuges

KEY SPECIFICATIONS

SINGLE SYSTEM FOR CONVEYING AND MACERATING

IMPROVED SANITATION

INTEGRATION INTO AUTOMATED SYSTEMS

COST SAVINGS

- Starch recovery
- Volume reduction
- Sanitary handling for animal feed
- Water treatment disposal costs reduced

BACKGROUND

Potatoes are used in the convenience and snack food industry in numerous products: Precooked french fries and croquettes as frozen food, seasoned potato wedges for commercial kitchens and finished products such as mashed potatoes. The snack food industry also processes and uses potato based ingredients for manufacturing potato chips and associated products.

TASK

Potato processing is highly automated, and throughput is high. This demands efficient removal of reject potatoes, peels and trimmings, along with downstream treatment of wastewater which may have a high starch and phosphoric acid content together with entrained solids.

SOLUTION

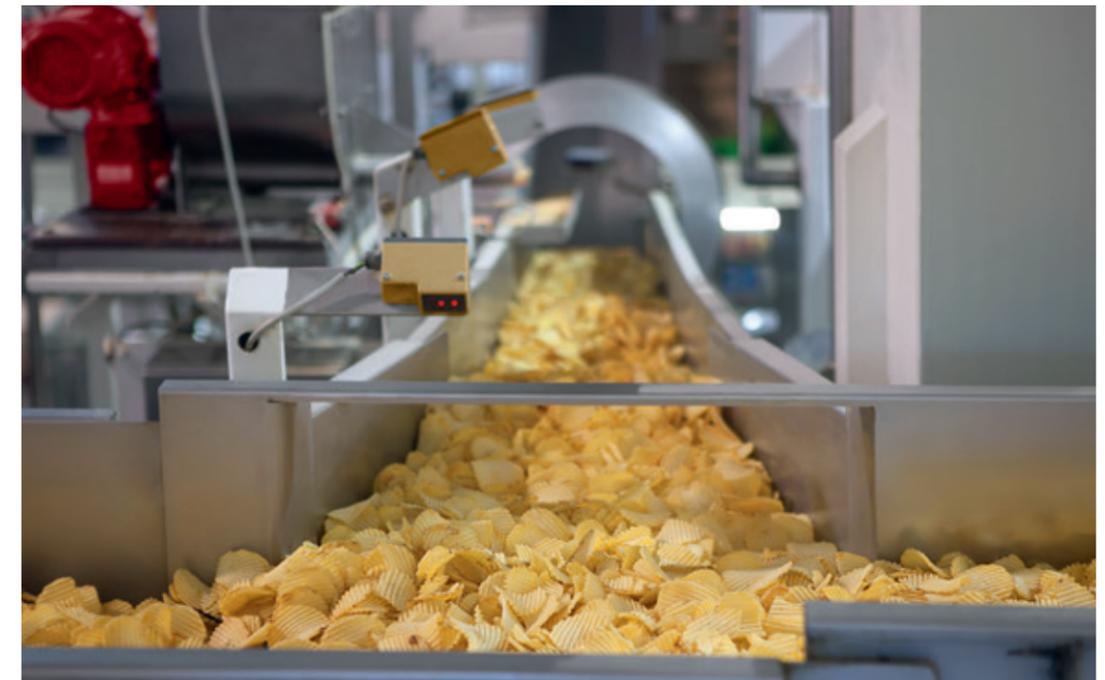
SEEPEx offers proven solutions for efficient, sanitary and economical chopping and transport of potatoes and potato waste which are integrated into highly automated production lines. BTM pumps handle whole reject potatoes and macerators provide further volume reduction – which is ideal for processing potato waste into animal feed or the extraction of valuable potato starch.

BN range pumps with SCT and BT range pumps are used to transport peels and starchy water, which is a by-product of potato processing.

Wastewater treatment to recover valuable starch uses product group T pumps to transfer the heavy sludge after dewatering.

BENEFITS

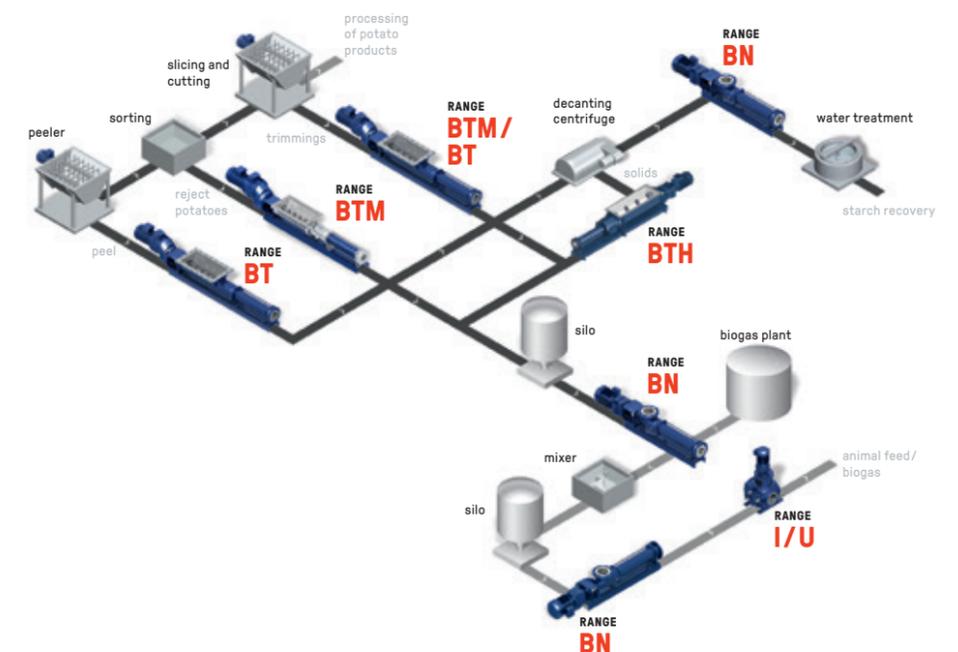
- Chopping and conveying of waste in a single step without the addition of water
- Integration into automated systems for rapid waste removal
- Resistance to corrosive peelings and trimmings
- Lower operating costs than alternative removal systems
- Facilitates the use of waste as feed, compost or biogas feedstock



POTATO PROCESSING FLOW CHART

APPLICATIONS

1. BT range pumps transport peels from automatic peelers
2. BTM range pumps chop and transport reject potatoes
3. BTM range pumps chop and transport trimmings from slicing and cutting
4. BTH range pumps transport sludge from the decanting centrifuge
5. BN range pumps with Smart Conveying Technology transport mixed potato waste from silos and mixers for further processing
6. Macerators reduce the particle size of potato waste for animal feed processing or biogas production



BREWERIES AND DISTILLERIES.

CONVEYED PRODUCT

- Spent grain, draff
- Waste yeast
- Trub
- Spent hops

KEY SPECIFICATIONS

ENCLOSED SYSTEM FOR SANITARY REMOVAL

RAPID REMOVAL INCREASES PRODUCTION UP-TIME

LONG DISTANCE PUMPING

VARIABLE PRODUCTS HANDLED WITH THE SAME EQUIPMENT

COST SAVINGS

- Low running costs
- Labor cost savings
- Higher production rates
- Long distance transfer
- Improved sanitation and value of by-product

BACKGROUND

The brewing and distilling process produces valuable by-products. These must be collected and transported for further processing into animal feed or for biogas production. Storage silos or biogas production facilities may demand long-distance transfer of by-products. Breweries and distilleries vary in size, from micro-breweries to large industrial beer and spirits production, with differing demands for handling methods.

TASK

Spent grain in brewing (draff in distilling), is a by-product which remains in the lauter tun at the end of the mash process. These grains, with up to 30% dry solids content and an approx. temperature of 70°C (158°F), must be removed rapidly to enable production to continue in batch processes. Traditional methods of removal vary from manual methods to conveyors and compressed air, which can be both inefficient and expensive. Spent hops, trub and waste yeast also need to be removed from different areas of breweries and distilleries efficiently.

SOLUTION

SEPEX pumps are the answer to all of these conveying problems. Open hopper pumps with auger feed systems transport highly viscous materials within closed pipe systems, even over long distances. SEPEX pumps increase productivity and reduce operating costs, thus contributing to company profits.

Specially designed pumps with extended hoppers for mixing several by-products before transport and those with re-inforced hoppers situated under centrifuges are all SEPEX solutions.

The innovative Smart Conveying Technology offers a cost effective solution for handling abrasive products such as spent grain or draff. This design, in addition to providing ease of maintenance without pipework removal, also extends pump operating life due to the adjustable stator segments.

BENEFITS

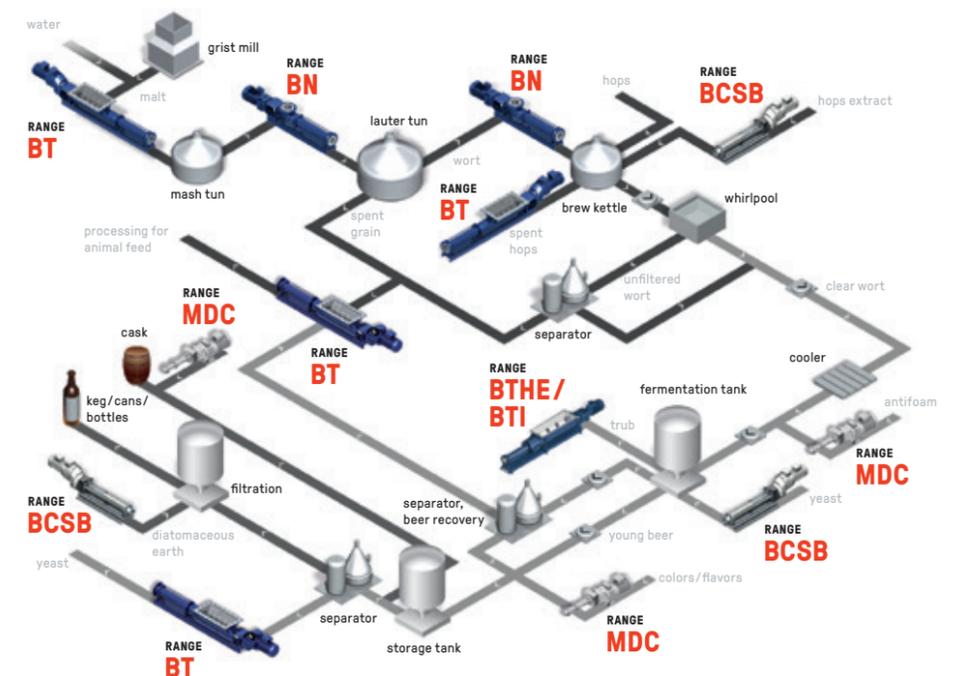
- Increased production facilitated by rapid grain removal
- Reduced energy costs compared to alternative systems
- Long distance transfer possible
- Handles thin and high viscosity products



BEER PRODUCTION FLOW CHART

APPLICATIONS

1. BT range pumps transport grains from the lauter tun and separate residue (brew, yeast) for further processing into animal feed or for biogas production
2. BT range pumps transport spent hops and trub for further processing into animal feed
3. BT range pumps with special hoppers transport waste yeast from separators



FOOD AND KITCHEN WASTE FOR USE IN BIOGAS GENERATION.

CONVEYED PRODUCT

- Kitchen waste
- Food waste
- Reconstituted food waste

KEY SPECIFICATIONS

SYSTEMS FOR MIXED FOOD WASTE

MACERATION TO DEFINED PARTICLE SIZE

COST SAVINGS

- Sanitary removal of mixed waste
- Ideal biogas feedstock
- Lower disposal costs
- Efficient removal from high care areas

BACKGROUND

The EU-Regulation No. 1774/2002 governs the safe, sanitary collection and disposal of food and kitchen waste.

TASK

Food and kitchen waste may no longer be fed to animals, but still must be disposed of safely. Due to the high nutrient content of these products, using digestion to produce biogas is a sensible solution.

Other food waste, off-specification batches, expired goods or food residue are often added, such as:

- Stale bread, bakery and confectionary products
- Sauces
- Deep fryer waste
- Dairy waste
- Cooking oils and fats
- Dough residue
- Animal by-products

SOLUTION

Due to the distinctive characteristics of SEEPEX pumps and macerators, they are ideally suited for processing these product mixtures and have been utilized successfully for biogas production. Thanks to the modular design and the wide variety of material combinations, the most technically and economically optimized pump can be created to suit every individual need.

BENEFITS

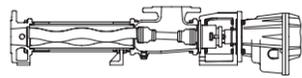
- Wide variety of products handled in a single pump
- High process reliability
- Lower energy costs



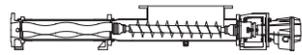
SEEPEX progressive cavity pumps have also been successful in many other areas of the food industry. SEEPEX solutions are found not only in waste food handling, but also in production processes for the food and beverage industry as well as many other industries around the globe.

YOUR PUMP SOLUTIONS AT A GLANCE.

BN RANGE

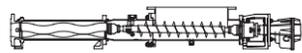


BT RANGE

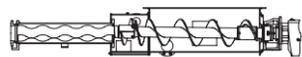


BTM RANGE

WITH INTEGRATED CUTTING DEVICE



BTEX RANGE



SEEPEX pumps transport thin to highly viscous products with or without solids at low to high temperatures, gently, with minimal pulsation and low shear. They also feature excellent metering accuracy.

BN range pumps are extremely service-friendly. Since the drive is directly flange-mounted to the pump, no separate pump bearing is required making the pump more compact and less expensive. The plug-in shaft connection between the drive and rotating unit makes replacing the rotating wearing parts and shaft seal easier.

- Conveying capacity: 30 l/h–500 m³/h (0.1–2,200 USGPM)
- Pressure: up to 48 bar (700 psi)

BT range pumps feature a rectangular feed hopper with compression zone and auger feed screw. The length of the hopper opening is adapted to the operating conditions. They are used to convey highly viscous products.

- Conveying capacity: 100 l/h–300 m³/h (0.4–1,320 USGPM)
- Pressure: up to 48 bar (700 psi)

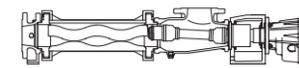
BTM range pumps include a chopping system. The knives on the rotating auger in combination with the cutters fastened to the compression housing chop the fed product. The enclosed system permits virtually oxidation-free chopping and subsequent pumping of the medium which is perfectly suited for the fruit and vegetable industry as well as meat, fish and poultry processing.

- Conveying capacity: 0.25–130 m³/h (1–572 USGPM)
- Pressure: up to 24 bar (350 psi)

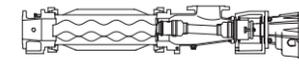
BTEX range pumps have a robust design with reinforced components for challenging applications in the food waste, agriculture and biogas industries. Trapped solids and foreign materials can be removed from the hopper/compression housing via large inspection openings. Connections in the hopper/compression housing can be used to feed in liquid to flush or liquify materials.

- Conveying capacity: 20–80 m³/h (90–350 USGPM)
- Pressure: up to 8 bar (120 psi)

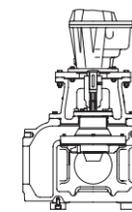
1-STAGE SCT



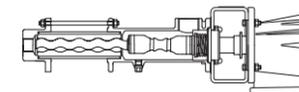
2-STAGE SCT



I RANGE



MD RANGE



Smart Conveying Technology (SCT) means faster maintenance as the time to replace the rotor and stator can be reduced by 85%. The patented, award winning design of SCT enables the stator to be adjusted to suit the application and to adjust for wear – leading to double the lifetime of the rotor and stator. Downtime and life cycle costs are also reduced.

- Conveying capacity: 130 m³/h (572 USGPM)
- Pressure: up to 8 bar (120 psi)

SEEPEX macerators chop solids/fibers and homogenize pumped product to increase the reliability of and protect downstream equipment. They can be integrated into pipelines or supply tanks and connected directly to a SEEPEX pump.

- Flow rate: 2–150 m³/h (8.8–660 USGPM)

MD range pumps are the ideal choice for metering low to highly viscous fluids with or without entrained solids that are chemically aggressive. They evenly and consistently convey concentrated cleaning products, enzymes, filter aids, disinfectants, biocides as well as critical flocculants for dewatering food waste.

- Conveying capacity: 0.2–1,000 l/h (0.05–264 USGPH)
- Pressure: up to 24 bar (350 psi)

SEEPEX.
ALL THINGS FLOW

SEEPEX GmbH
www.seepex.com