

seepex.com
all things flow

Your Pump Solution
for Waste Disposal in the Food
and Beverage Industry.



Top class waste disposal.

Billions of people worldwide benefit from the production, processing and marketing of foods and beverages. In addition to the delicious products, the manufacturing process also produces waste. This waste primarily consists of residues, off-specification batches, excess production and expired goods.

The quantity and different properties, as well as stricter legislation on the disposal of this waste, are real challenges for pumping technology in general and progressive cavity pumps in particular. The hygienically critical waste from meat and poultry production, as well as food scraps, must be fed to appropriate disposal systems rapidly and safely. If possible, these systems should be enclosed.

Considered from a modern perspective, standard methods of waste handling such as manual transport using tote bins, conveyors, compressed air systems or flumes are generally inefficient, unhygienic and cost-intensive. Pumping the waste products through a closed piping system is an ideal alternative and prevents accidental contamination, soiling of the working environment, unpleasant odours and rising costs.

As a leading international provider of pumps and pumping services, seepex makes a valuable contribution to waste handling systems. We enjoy responding to this challenge in the food industry using state-of-the-art technology, while taking strict hygiene guidelines into consideration and guaranteeing reliability as well as easy maintenance.

The modular system, consisting of 8 product groups and 27 ranges, allows us to offer the optimal technical and economical solution for any application. For example, customized feed hopper pump solutions with auger feed screws can cope with even highly viscous products, with or without solids, as well as product mixtures. In particular, the BTM range with its patented cutting device in the compression area effectively chops the material to be conveyed, reducing the volume of the substances by up to 60 %. This results in significant savings on transport costs. Even finer results can be produced by our macerators, which are used in combination with our pumps. As a result, each pump is selected to the specific requirements of your industry, your company, your site, your application, and of course the product you wish to convey.

This is ensured by 370 of the over 630 employees worldwide who work for seepex in Bottrop. They develop, manufacture and market customized pumping solutions – whether progressive cavity pumps, macerators, control systems or our service programs.

Our pumps offer maximum reliability, which can also be augmented with our comprehensive range of services at all stages during the life of a pump. This allows us to provide not only technically but also economically optimal solutions for a wide range of applications

No wonder it is hard to imagine food waste processing without our pumps.

A BTM range pump chops whole plants after harvesting and disposes of them for further use as compost or for generating green energy.



Meat, fish and poultry industry

Including pumping of:

- Butchers by-products
- Fish, whole or in pieces
- Meat and sausage waste
- Poultry, whole or in pieces

Fruit and vegetable industry

Including pumping of:

- Apples
- Carrots
- Cherries
- Currants
- Lettuce
- Melons
- Onions
- Pears
- Plants, whole or chopped
- Potatoes
- Soya

Breweries and distilleries

Including pumping of:

- Brewers spent grain, Distillers draff
- Fruit pulp
- Wine and spirits residues

Biogas industry

Including pumping of:

- Animal by-products
- Cooking oils and fats
- Dairy waste
- Deep-fried residues
- Dough residues
- Plant-based products
- Stale bread, bakery products and confectionary

Pumping solutions for disposal in the meat, fish and poultry industry.

The ever-increasing growth in demand for convenience products has meant that the industry needs more and more cut, diced or chopped fish and meat.

The processing methods for these basic ingredients generate significant quantities of waste, just like the traditional filleting or canning methods. Our pumps are ideal for conveying these residues, consisting of intestines, skin, heads or other body parts, out of the production areas. The enclosed piping system meets high hygiene standards. By-products from butchering, such as blood, cartilage, fat etc. and waste and off-specification batches from sausage production are also transported effectively, hygienically and cost-effectively. It is generally beneficial with meat, fish and poultry waste for animal feed production if the waste has already been pre-chopped. There are two technological solutions for this:

First, the BTM range pumps, with integrated cutting device, which pump and chop in a single operation. Even entire poultry bodies, such as dead or off-specification chickens, can be processed in this way.

Second, the seepex macerators which chop waste of different kinds particularly finely. Even solids like small bones or cartilage simply become part of the flow in the pumping process.

seepex pumps make transporting unpleasant smelling waste in open containers a thing of the past.

Applications (see flow chart on next page)

- 1 BTM range pumps chop and transport whole poultry which is dead on arrival for further processing
- 2 MD range pumps meter dye for the poultry waste
- 3 BTM range pumps chop and transport rejected whole poultry for further processing
- 4 MD range pumps meter dye for the poultry waste
- 5 BTM range pumps chop and transport poultry parts for further processing
- 6 BTM range pumps chop and transport poultry parts for further processing
- 7 BTM range pumps chop and transport poultry bodies for further processing
- 8 BT range pumps transport mechanically recovered meat residue (MRM) for further processing

Features

- Chopping, mixing and conveying the meat waste in a single step without adding water
- Clean working environment without unpleasant odours
- Low maintenance requirement
- Low energy and water consumption
- Lower purchasing costs
- Reduction of the volume and the disposal costs



Pumps of range BN 35-6L

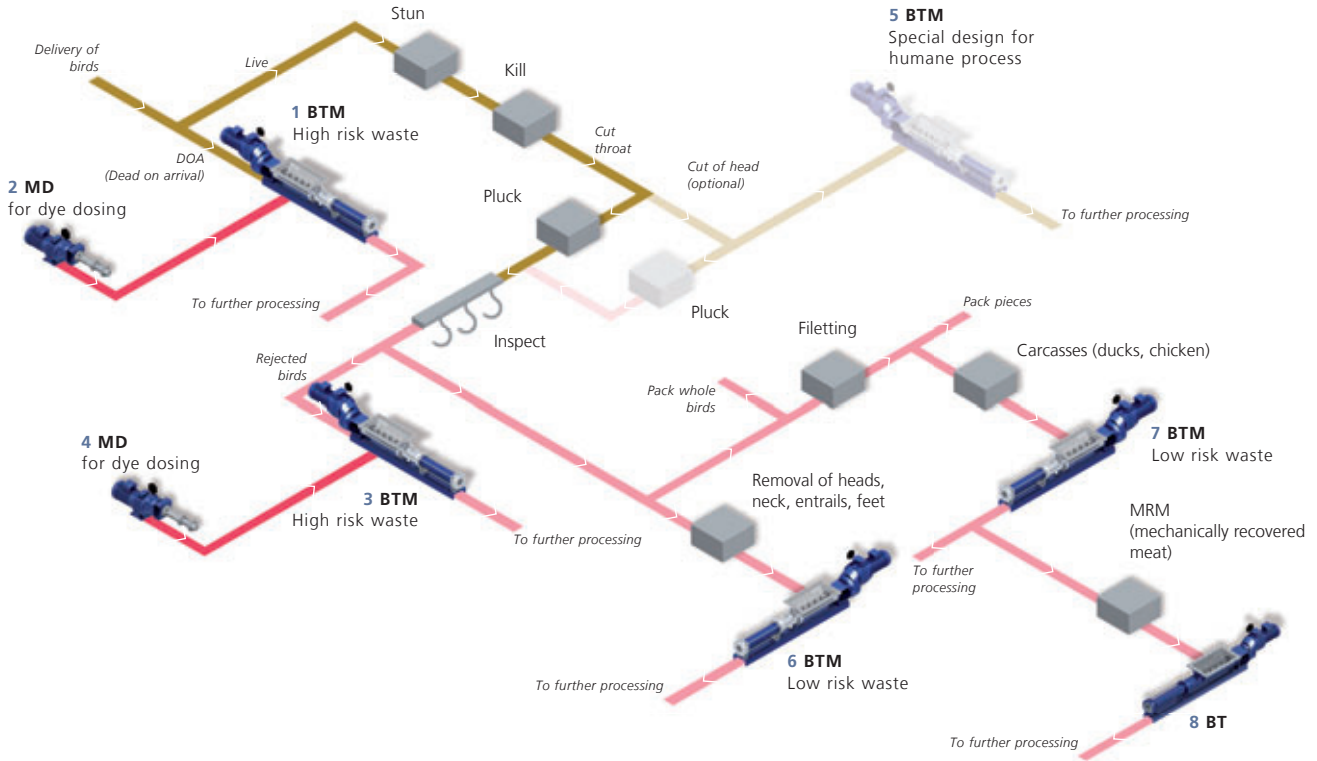
Conveying product: Fish waste with a particle size of up to 6 mm
Conveying capacity: 25 m³/h (110 GPM) • Pressure: 1 bar (14 PSI)
Temperature: 5–20 °C (41–68 °F)



Pump of range TNS 10-48

Conveying product: Greaves (meat pulp) with a ds content of up to 26 %
Conveying capacity: 3.5 m³/h (15 GPM) • Pressure: 30 bar (435 PSI)
Temperature: 60 °C (140 °F)

Flow chart based on poultry processing



Pump of range BN 10-12 and macerator 25U with solids separator
 Conveying product: Poultry intestines
 Conveying capacity: 4 m³/h (17 GPM) • Pressure: 6 bar (87 PSI)
 Temperature: 20 °C (68 °F)



Standard transport of whole chickens in open containers

Pumping solutions for waste disposal in the fruit and vegetable industry.

Many processors in the fruit and vegetable industry still transport the waste manually for disposal. Open containers are generally used, which are transported by the employees over long distances to the waste collection containers. Some plants also use conveyor belts, which make this task easier. Both transport methods have three things in common, which one of our customers summarized as follows: "Time-consuming, chaotic and damn expensive."

seepex has attended to these conveying challenges, to make the processes faster, cleaner and above all more cost effective.

An effective and low-cost solution is the BTM range feed hopper pump. Its compact dimensions allow the pump to be positioned in the immediate vicinity of sorting systems. The waste to be conveyed is chopped by the knives integrated in the pump, and then transported to the final container in a closed piping system.

Dirty floors and unpleasant odours are a thing of the past. Users of our pumping solutions enjoy clean plants day in, day out, and their employees, who no longer have to perform unnecessary manual labour involving unpleasant odours, are happier.

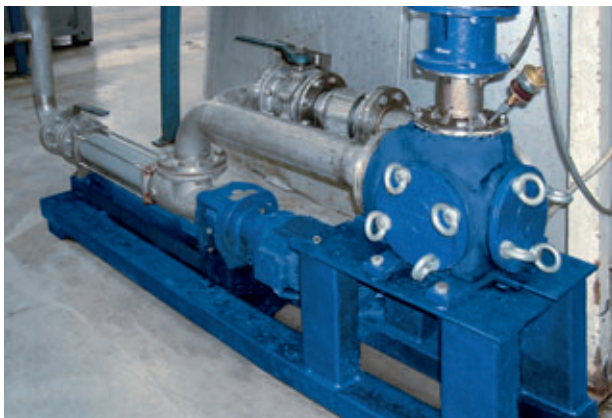
In addition to disposal, the fruit and vegetable waste can also often be used as animal feed, compost or as a source of green energy. Pre-chopping of the products using our BTM pump and an optional downstream macerator have also proven themselves ideal for this application.

Applications (see flow chart on next page)

- 1 BTM range pumps chop and transport potato waste from the brush peeler to the decanter or silo
- 2 BN range pumps transport fruit water for refining and further starch production
- 3 BN range pumps transport chopped potatoes from the silo to the mixer
- 4 BN range pumps transport pre-mixed potato waste from the silo for further processing to pig feed
- 5 Macerator of product group M reduces the potato waste pieces for further processing to pig feed

Features

- Chopping, mixing and transport of the residues in a single step without adding water
- Clean workplace
- Minimizes unpleasant odours
- Reduction of the volume and the disposal costs
- Reduction of manual handling, improved health and safety, while reducing costs
- Makes using waste as feed, compost or for green energy easier



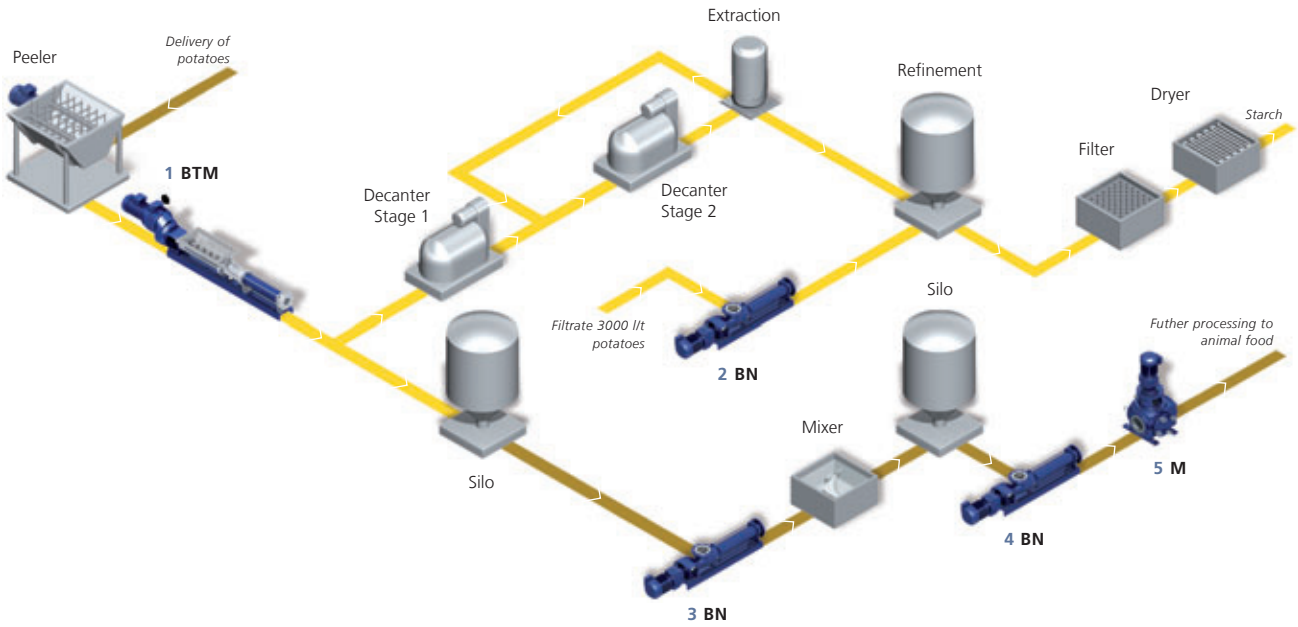
Pump of range BN 35-6L and macerator 1101

Conveying product: Various food waste
Conveying capacity: 25 m³/h (110 GPM) • Pressure: 2 bar (29 PSI)
Temperature: 40 °C (104 °F)



Different kinds and sizes of fruit

Flow chart based on potato processing



Pump of range TNS 2-12
 Conveying product: Unusable diced potatoes from convenience food production
 Conveying capacity: 1 m³/h (4.4 GPM)
 Pressure: 5 bar (72 PSI) • Temperature: 40 °C (104 °F)



Pump of range TNS 2-12, detailed view
 View into the feed hopper

Pumping solutions for disposal in breweries and distilleries.

By-products from the brewing and distillery process must be transported for further processing to animal feed or disposal. Beer spent grain is one of those by-products which remains in the lauter tun as a malt residue at the end of the mash process when producing beer. It contains all parts of the grain that are not water-soluble, e.g. spelt, husks and fat.

Draff residues in distillery processes are very similar to those in breweries. These residues with up to 80 % ds content and a temperature of approx. 70 °C (158 °F) must be transported for disposal.

This is generally done manually: Angled conveyors, compressed air systems or even manually driven containers are commonly used. These methods have several things in common: Dirty working environments, unpleasant conditions for employees, inefficient transport. They are also very cost-intensive.

Our pumps solve all of these transport problems at once. They transport the highly-viscous product within closed piping systems, even over long distances. They increase productivity and reduce operating costs, thus contributing to bottom line profits of your company.

Applications (see flow chart on next page)

- 1 BT range pumps transport grains from the lauter tun and separation residues (brew, yeast) for further processing to animal feed

Features

- Higher reliability
- Clean workplace
- Reduction in energy costs
- Increased economies of scale



Pump of range BN 70-6L

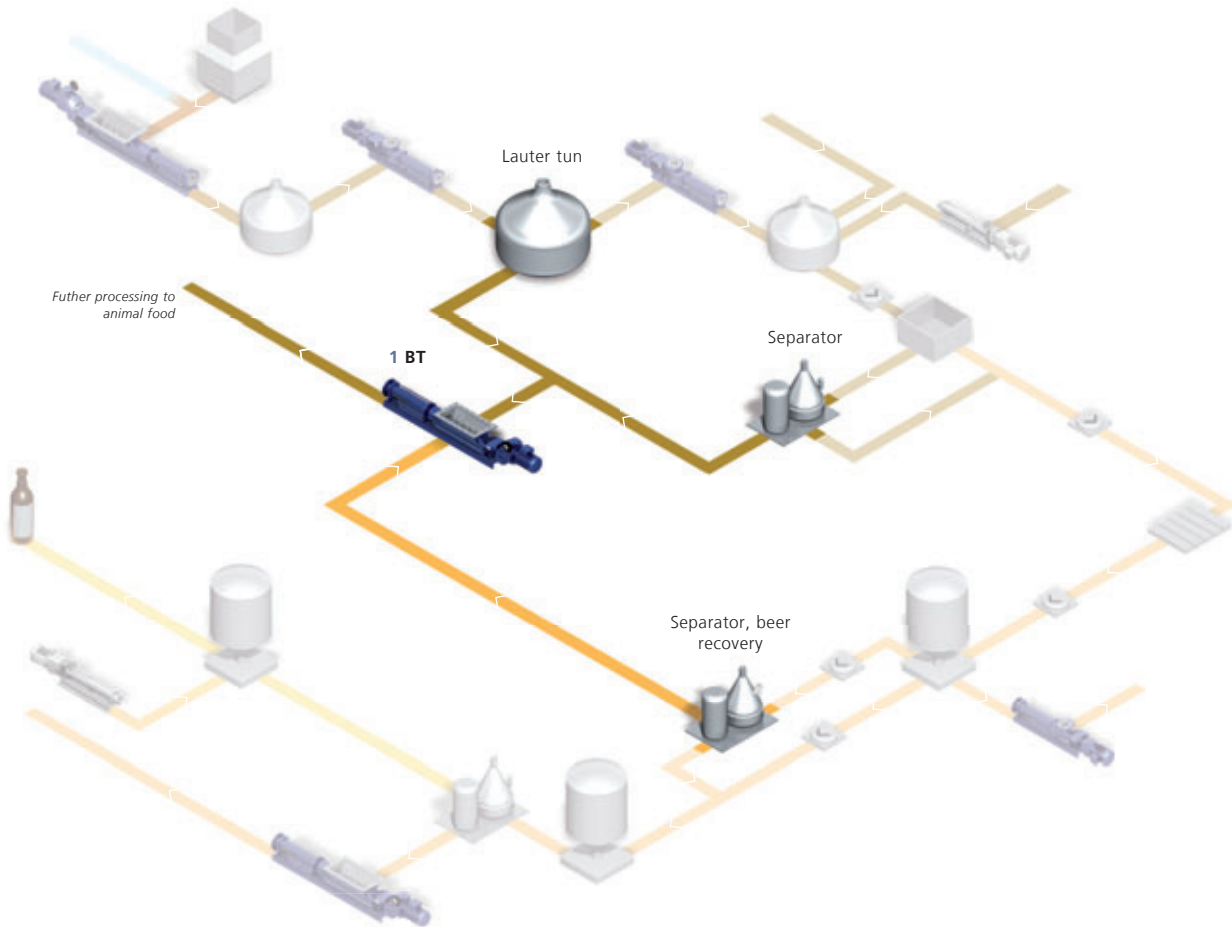
Conveying product: Fermentation residues
Conveying capacity: 50 m³/h (220 GPM) • Pressure: 3 bar (43 PSI)
Temperature: 10–20 °C (50–68 °F)



Pump of range BT 35-24R

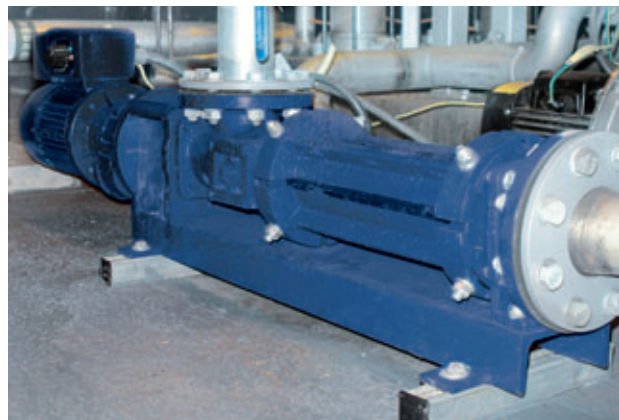
Conveying product: Draff with a ds content of 25 %
Conveying capacity: 6 m³/h (26 GPM) • Pressure: 12 bar (174 PSI)
Temperature: 60 °C (140 °F)

Flow chart based on beer production (excerpt)



Pump of range BTHE 5-12

Conveying product: Drained fermentation residues with a ds content of 12 %
 Conveying capacity: 0.6 m³/h (2.6 GPM) • Pressure: 6 bar (87 PSI)
 Temperature: 10–20 °C (50–68 °F)



Pump of range BN 10-6LS with Smart Stator Technology SST

Conveying product: Filtrate
 Conveying capacity: 3 m³/h (13 GPM) • Pressure: 2 bar (29 PSI)
 Temperature: 5–40 °C (41–104 °F)

Pumping solutions for food and kitchen waste for use in biogas generation.

The EU-Regulation No. 1774/2002 governs safe, hygienically clean collection and disposal of kitchen and food waste, among other things. For the past few years, feeding such waste to animals for fattening has been prohibited and the scraps must be disposed of. As a result of the significant moisture content of these products, using them to generate energy by fermenting them to produce biogas makes sense.

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

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

As a result of their specific properties, our pumps and macerators are ideally suited to processing these product mixtures, and have been used successfully in biogas production for years.

Thanks to our modular design and numerous material combinations, the technically and economically optimized pump can be made to suit your individual requirements. This guarantees top performance, dependable processing and the lowest life cycle costs.

Due to their specific pump design and function, our progressive cavity pumps are successfully used in other areas of the food industry as well. You will find seepex pumping solutions both in production processes and in the area of waste disposal in the beverage industry.

In addition to this brochure, please also see our other printed material for beverage industry, the dairy industry and the baking and confectionery industry.



Pump of range BN 35-12 and BN 26-6L

Conveying product: Mixture of liquid manure and fat
Conveying capacity: 10–18 m³/h (44–79 GPM) • Pressure: 3–5 bar (43–72 PSI)
Temperature: 45–70 °C (113–158 °F)



Pump of range BN 17-6L and macerator 25I

Conveying product: Various food waste
Conveying capacity: 8 m³/h (35 GPM) • Pressure: 1.5 bar (65 PSI)
Temperature: 20 °C (68 °F)

Your pump solutions at a glance.

seepex pumps transport low to high-viscosity products with and without solids at low and high-temperatures, gently, with minimal pulsation and low shear. Other outstanding features include excellent metering accuracy and the ability to easily transport products such as whole or chopped fish or vegetable peel.

BTM range pumps have a patented cutting device. The knives on the rotating conveying screw chop the fed products in combination with the cutting tools fastened in the compression housing. The closed system permits virtually oxidation-free chopping of the pumped medium, followed immediately by pumping. The main areas of application for this technology are the fruit and vegetable industry as well as meat, fish and poultry processing.

- > Conveying capacity: 50 l/h–500 m³/h (0.22–2200 GPM),
Pressure: up to 36 bar (540 PSI)

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

- > Conveying capacity: 50 l/h–500 m³/h (0.22–2200 GPM),
Pressure: up to 36 bar (540 PSI)

In BN range pumps, 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 the rotating unit makes replacing the rotating wearing parts and shaft seal easier. This makes the BN range extremely service-friendly.

- > Conveying capacity: 30 l/h–500 m³/h (0.13–2200 GPM),
Pressure: up to 48 bar (720 PSI)

seepex macerators chop solids and fibres in the pumped product to increase the reliability and extend the service life of the downstream equipment. They are available as inline designs with integrated solid separators and universal versions for direct installation in a pipeline or with a supply container with a direct connection to one of our pumps.

- > Flow rate: up to 150 m³/h (660 GPM)

See our “Product groups and ranges” brochure for further solutions for a wide range of applications.

Range BTM with integrated cutting device



Range BT



Range BN



Range I



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And what can we get flowing for you? Your nearest contact:

Or visit www.seepex.com

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