

# HIGHLY RESISTANT TECHNOLOGY FOR THE FOOD, FOOD WASTE & BEVERAGE INDUSTRY

Pumps and grinders as standalones or block systems

VOGELSANG – LEADING IN TECHNOLOGY

**VOGELSANG**







# You can rely on it

**Quality, experience and expertise  
guarantee future-proof technology**

**As the inventor of the elastomer-coated rotary lobe pump and a relentless agent for innovation, Vogelsang has ranked among the world's leading mechanical engineering companies in the area of pumping and cutting technology for decades.**

Food producers and processors all around the world have learned to trust the application-oriented character and outstanding quality of our machines. Based on our extensive and varied experience, as well as our continuous research, we not only develop highly functional components and systems, we focus on durability. Because in the long run, only disruption-free operations and low maintenance efforts will effectively help our customers save time and money. Both the production process and the material quality of our machines speak for how seriously we take our commitment to our customers. The adaptability and versatility of our machines provide a substantial base for sustainability just as much as for economic efficiency.

# Tough machinery for rough media

## Safe and simple technology for grinding and pumping

An economic industrial food production system relies on many different physical and mechanical manufacturing processes. Raw and semifinished products, as well as supplies and additives, need to be pumped and grinded. In addition, waste material has to be treated for disposal and pumped appropriately.

Vogelsang rotary lobe pumps and grinders guarantee the trouble-free handling of difficult and demanding substances and thereby ensure efficient processing. Their designs and functions are well engineered and sturdy, making them ideal for heavy loads and stresses. As individual or multistage grinding and pump units, they are ideally suited to manage all kinds of abrasive and viscous media, including media with a high share of foreign and coarse matter such as pit, bones, stones or fibers. Hardly susceptible to interferences and extraordinarily low in maintenance, Vogelsang stands for cost-efficient solutions for the food industry.

# Overview of Vogelsang technology for the food industry

## Pumps

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### VX series (rotary lobe pumps)

- Compact, durable and easy to maintain
- Self-priming and dry-running resistant
- Pumping direction can be changed as desired
- Suitable for a wide range of pumping tasks



### IQ series (rotary lobe pumps)

- Especially easy to operate and maintain, thanks to their unique design
- High intake, dry-running resistant
- Straightforward integration into pipe systems
- Suitable for a wide range of pumping tasks



### CC series (progressive cavity pumps)

- Rapid replacement of pumping elements, individually or as a unit
- Minimal space requirement
- Designed for heavy-duty use
- Suitable for pumping highly abrasive media and those with high foreign-matter content

## Macerator

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### RotaCut®

- Cutter and heavy-material separator in one
- Reliable chop down of fibrous and coarse matter in liquid
- Protects downstream plant components
- Optional online monitoring

## Systems

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### RedUnit

A combination of

- RedUnit XRL
- CC-Serie
- RotaCut RCQ

## Exemplary usage of Vogelsang pumps, grinders and systems



### Food waste processing

- Macerating and pumping raw materials
- Pumping supplies, such as starch or diatomite
- Macerating and pumping raw production waste
- Draining grease separators



### Fruit and vegetable processing

- Pumping fruit and vegetables
- Macerating and pumping raw production waste



### Abattoirs

- Waste: stomach and intestines, as well as non-usable body parts
- Grinding bones
- Pumping blood



### Fisheries

- Waste: fish bones and heads grinding and pumping
- Production of fish oil and fish flour



### Oil products

- Macerating and pumping raw materials
- Pumping pomace and production waste



### Beverage production

- Macerating and pumping pomace and production waste
- Sediments pumping in beer production



### **Wine production**

- Whole grapes or destemming grapes pumping
- Must, pump-over
- Bottling
- Lees or sediments pumping



### **Dairies**

- Pumping whey slops
- Pumping and macerating procedures in the sewage treatment plant



### **Sugar manufacturing**

- Pumping applications in sugar production, e.g., molasses, carbolime, massecuite, magma, syrup
- Crystal-friendly pumping of syrup
- Filling and draining tanks
- Macerating residues



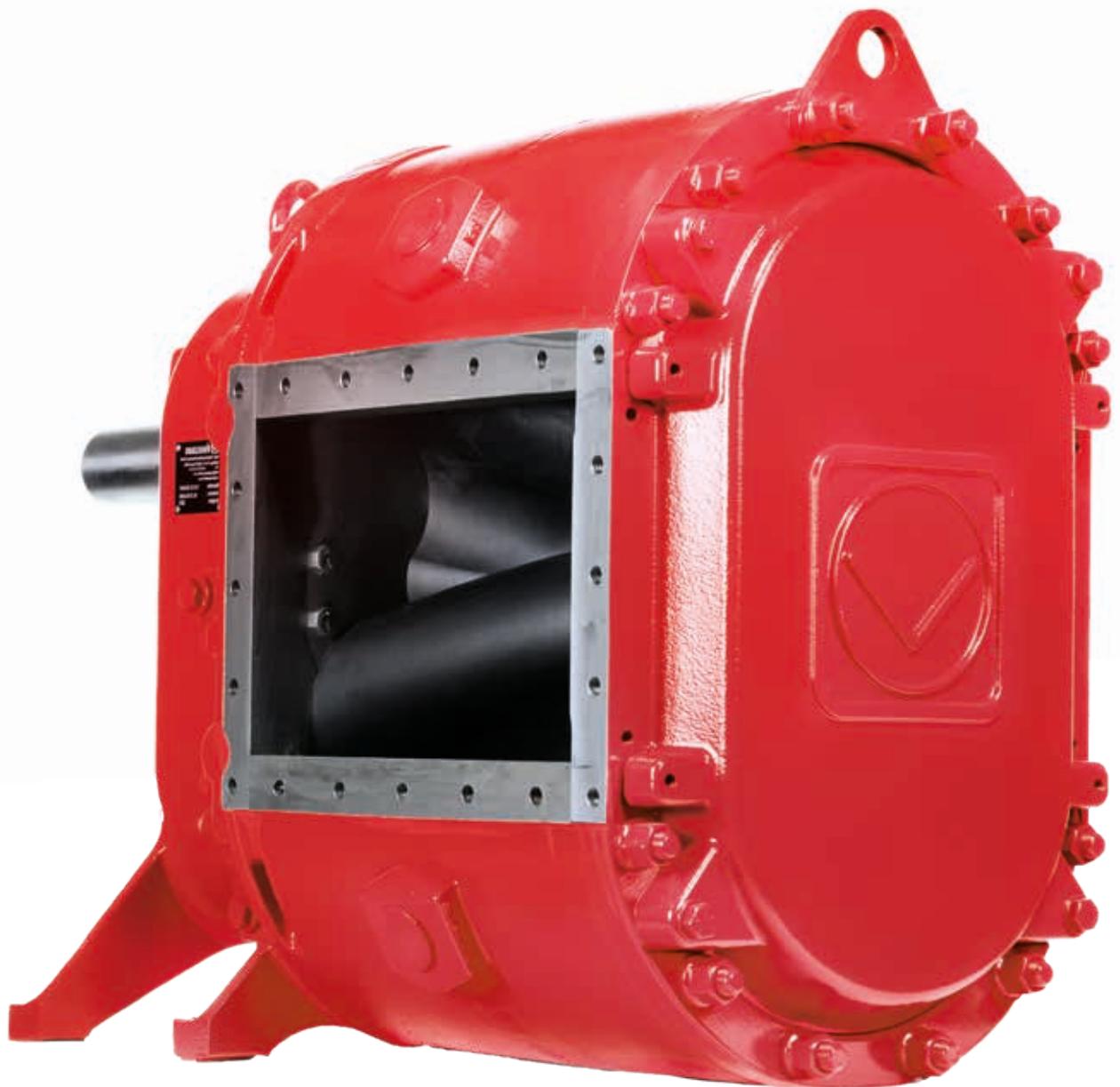
### **Logistics**

- Filling and draining tanks
- Mobile pumping on tankers



### **Disposal and recycling**

- Grinding mixed organic waste from supermarkets
- Overproduction waste
- Product depackaging



Rotary lobe pumps from the VX series

# The original: popular & proven

**Vogelsang rotary lobe pumps – tested and established in the widest variety of pumping tasks**

We invented them, we advanced and perfected them. Today, elastomer-coated rotary lobe pumps set the standard worldwide for reliable and durable pump technology.

## **The principle**

The rotary lobe pump is a positive displacement pump. The principle is ingeniously simple: the rotating lobe seals the medium on the suction side in a chamber between the housing and lobe. It pumps it at the top and bottom of the pumping chamber through the pump to the discharge side. This enables a particularly compact type of construction with gentle pumping, good priming and dry-running characteristics, as well as easy access to the pumping elements.



## **Advantages of the VX series at a glance**

- Fast access to the pumping chamber by disassembling the cover
- On-site service and maintenance
- Self-priming and dry-running resistant
- Shaft warranty
- Free passage up to max. 90 mm
- Pressure up to 16 bar
- Optional: 100% stainless steel

### The cost-effective solution for a wide range of pumping tasks

As non-contacting, rotating positive displacement pumps, they are suitable for a wide range of applications. Thanks to pulsation-free running HiFlo rotary lobes, a speed-proportional delivery rate and high resistance to both foreign matter and dry running, the pumps offer the optimum solution for very different pumping tasks. They are also incredibly easy to maintain.

### Leading edge through expertise

Vogelsang rotary lobe pumps are used all around the world, proving their quality in a wide variety of applications. We are constantly developing the technology for Vogelsang rotary lobe pumps, expanding the range of applications and improving the ease of maintenance. The patented InjectionSystem and Cartridge mechanical seal technologies and the unique HiFlo lobes are just a few of many examples. Constant innovation for maximum efficiency and cost-effectiveness is what you can expect from Vogelsang.

### Sealing technology for professionals

For rapid and reliable seal replacement, cartridge mechanical seals have been the standard for years in VX series pumps. The completely preassembled units contain all components, thereby ensuring high availability and operational reliability.

### InjectionSystem

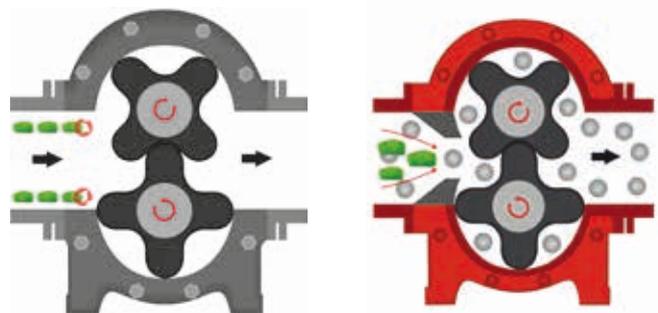
In conventional rotary lobe pumps, foreign and solid matter does not immediately enter the pump chamber, but instead rotates in front of the pump chamber. This often results in damage as well as increased wear on the lobe tips. The innovative InjectionSystem enables foreign matter to be injected directly into the opening pump chambers. This prevents collisions with the lobe tips. The internal sealing of the pump is also increased. The flexible injection modules can be adapted on-site for a different flow direction.

### Control technology

The implementation of progressive control technology realizes a significant increase in the performance and efficiency of our rotary lobe pumps. Pressure, flow, current consumption and (optionally) speeds are monitored constantly; the correlations between them are intelligently linked. In this way, the Performance Control Unit (PCU) is able to automatically register the load and ensures that the pump is operated in the optimum range, using appropriately defined control interventions.

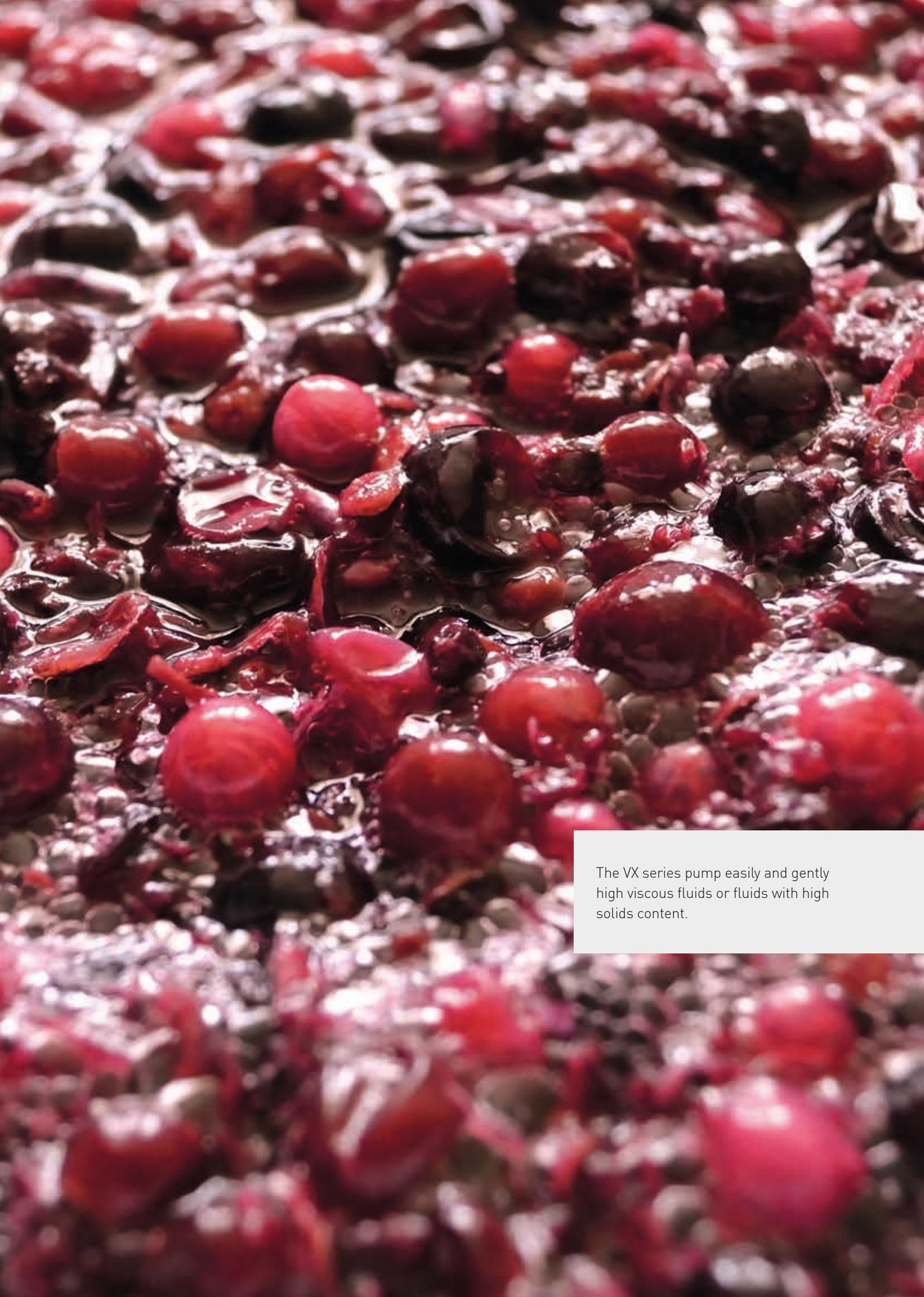
### The pump with the service benefit

A pump not only has to work efficiently, it also has to be accessible and trouble-free when it comes to service and maintenance. As we are familiar with your everyday needs, we integrated all of this into our QuickService concept – on-site service and maintenance – in next to no time. From your first contact, we provide comprehensive consulting and supervision throughout the entire lifetime of your Vogelsang rotary lobe pump. This guarantees maximum efficiency; up to 75% less time is required compared to other positive displacement pumps.



A vortex forms upstream from the inlet in rotary lobe pumps of conventional design. Foreign matter that damages the lobe tips becomes trapped here.

The InjectionSystem prevents vortex formation. It reduces damage due to foreign matter and increases efficiency as well as intake capacity.



The VX series pump easily and gently high viscous fluids or fluids with high solids content.

# Reliable performance, flexible applications

**Vogelsang rotary lobe pumps – proven reliable in the widest variety of pumping tasks**

## **High variety, low maintenance**

Rotary lobe pumps in the VX series have an impressive range of sizes and designs, numerous equipment and material variants, and many drive possibilities and installation options. All models have two things in common: a compact design and easy maintenance.

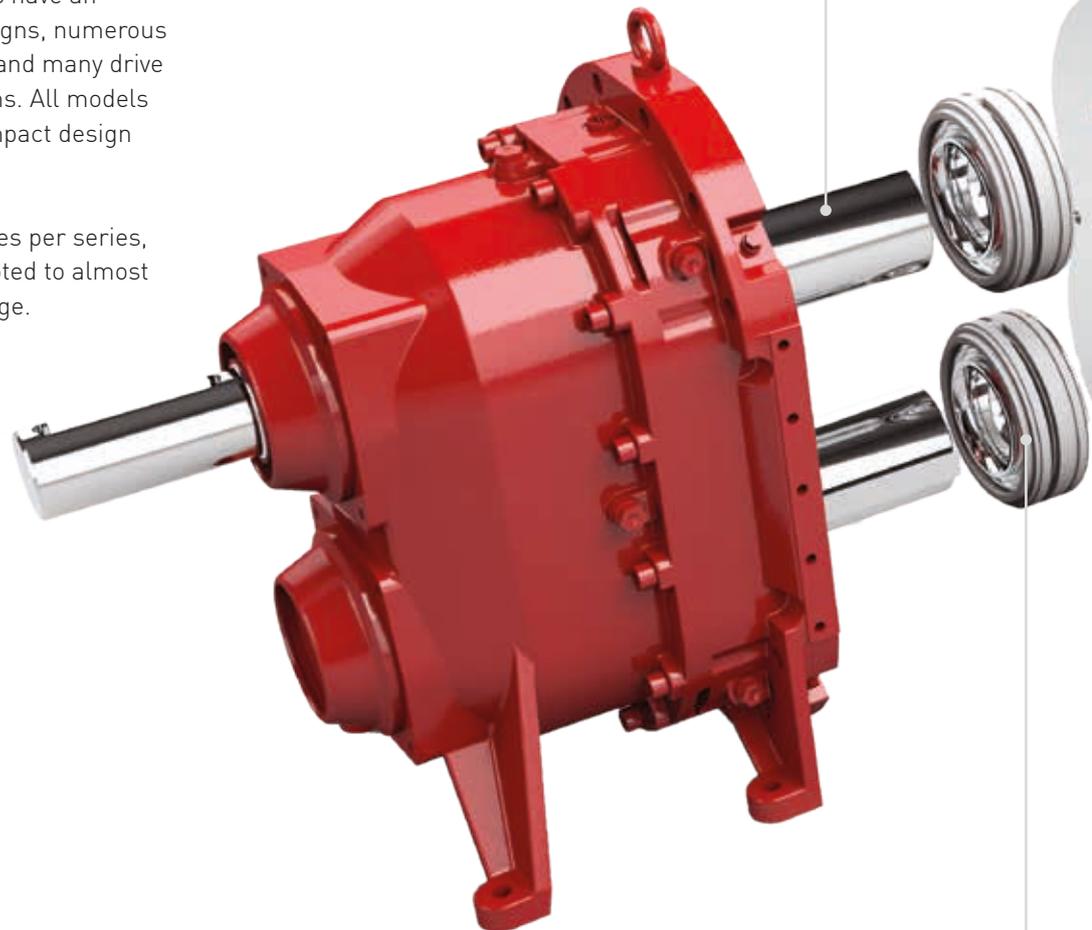
With five series and up to eight sizes per series, a VX rotary lobe pump can be adapted to almost any delivery rate and pressure range.

## **Component-based design**

Major time savings from single part replacement

## **Break-proof shafts**

Maximum shaft diameters for very smooth running



## **Quality Cartridge mechanical seal**

Professional sealing technology for maximum reliability

**Adjustable pump housing segments**

Optimum utilization of materials for prolonged service life

**HiFlo® lobes**

Pulsation-free pumping for very smooth running

**QuickService design**

Quick-and-easy access to all the medium-affected parts without dismantling the pump

**Axial and radial wear plates**

Lined pump housing made from highly wear-resistant special steel to extend maintenance intervals and make servicing easier

**InjectionSystem**

Unique! The first integrated foreign-matter protection for rotary lobe pumps paired with greater internal sealing

**100% renewal of the pumping chamber**

Capacity like on the first day of use – after replacement of medium-affected parts



# Minimalistic in service and size

The particularly cost-effective  
Vogelsang IQ series



IQ112 rotary lobe pump

### A new concept

Thanks to their compact design, their flexible installation options and their quicker servicing, IQ pumps embody the epitome in rotary lobe pump technology. The pump housing is a complete unit. The pumping elements can be accessed freely in a few easy steps while the pump remains firmly screwed into the pipe.

### Easy to integrate

The connecting parts used for the variable series allow the majority of installation circumstances to be met. This means that the IQ series pumps can be quickly and easily attached or installed in a wide range of positions, including to tank vehicles and mobile units, without the need for special connections.

### For low operating costs

The number of central spare parts has been halved in comparison to the conventional design. The costs for replacement parts are reduced accordingly. The concept of the IQ series allows further cost savings as the time required for cleaning and replacing parts has been significantly reduced. IQ pumps are designed so that less than half the time is required to replace all wear parts – including rotary lobes, wear plates, pump housing and gaskets – compared to rotary lobe pumps that are commonly found on the market.

### For special applications

The nominal delivery rate of IQ pumps is up to 77 m<sup>3</sup>/h at pressures of up to max. 8 bar. The IQ series is perfectly suited to demanding applications with abrasive media, for example in disposal processes.



### Advantages of the IQ series at a glance

- Quicker, optimum access to the pumping elements
- Pump always remains firmly screwed into the pipe during service and maintenance work
- Integrated dry-running protection
- Self-priming, good suction capacity
- Easy and flexible integration



# POWER PERFORMER WITH MAXIMUM SERVICING CONVENIENCE

The practical CavityComfort  
progressive cavity pump  
for heavy-duty applications





With the CC series, Vogelsang has decisively improved the trusted concept of progressive cavity pumps: thanks to their innovative design, the pumps set new standards regarding the ease of service and maintenance.

#### Reliable each and every day

The innovative CC series has been developed for harsh applications in which highly viscous and abrasive media with a high foreign-matter content need to be pumped and where maximal availability is extremely important.

#### Unique concept for the easiest service

All essential parts, including the seal, can be rapidly and easily replaced, so the pump is quickly ready for use once again. Thanks to the clever pivot mechanism, it is no longer necessary to disassemble pipeline parts to perform service work. The tried-and-trusted cartridge mechanical seal is used as the pump shaft seal. Since it is a pre-mounted mechanical seal, it can be quickly and easily replaced onsite. In contrast to conventional systems, the seal can be replaced without needing to remove the cardan shaft. When the parallel shaft geared motor is removed, the seal is also accessible from the drive end, where it can be replaced with just a few movements and without opening the pump.

#### Fast replacement of parts

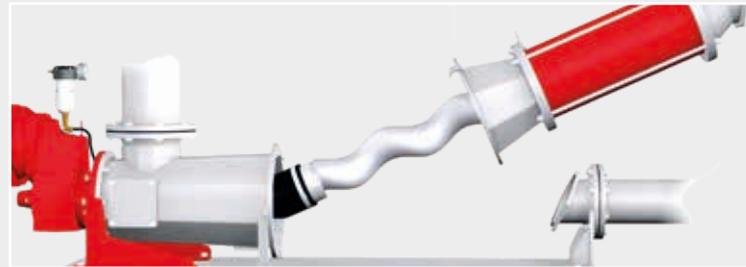
The CC series offers many options for replacing parts. The stator and rotor can be replaced by an individual unit, as well as the complete rotating assembly (stator, rotor and cardan shaft).

#### Replacement step by step

Once the pump unit has been pivoted out, the stator is removed. Next, if necessary, the rotor is replaced – without removing the protective sleeve around the cardan shaft. The cardan shaft can then be removed.



Quick servicing: stator and rotor replaced as a unit



Step by step: replacing the stator ...



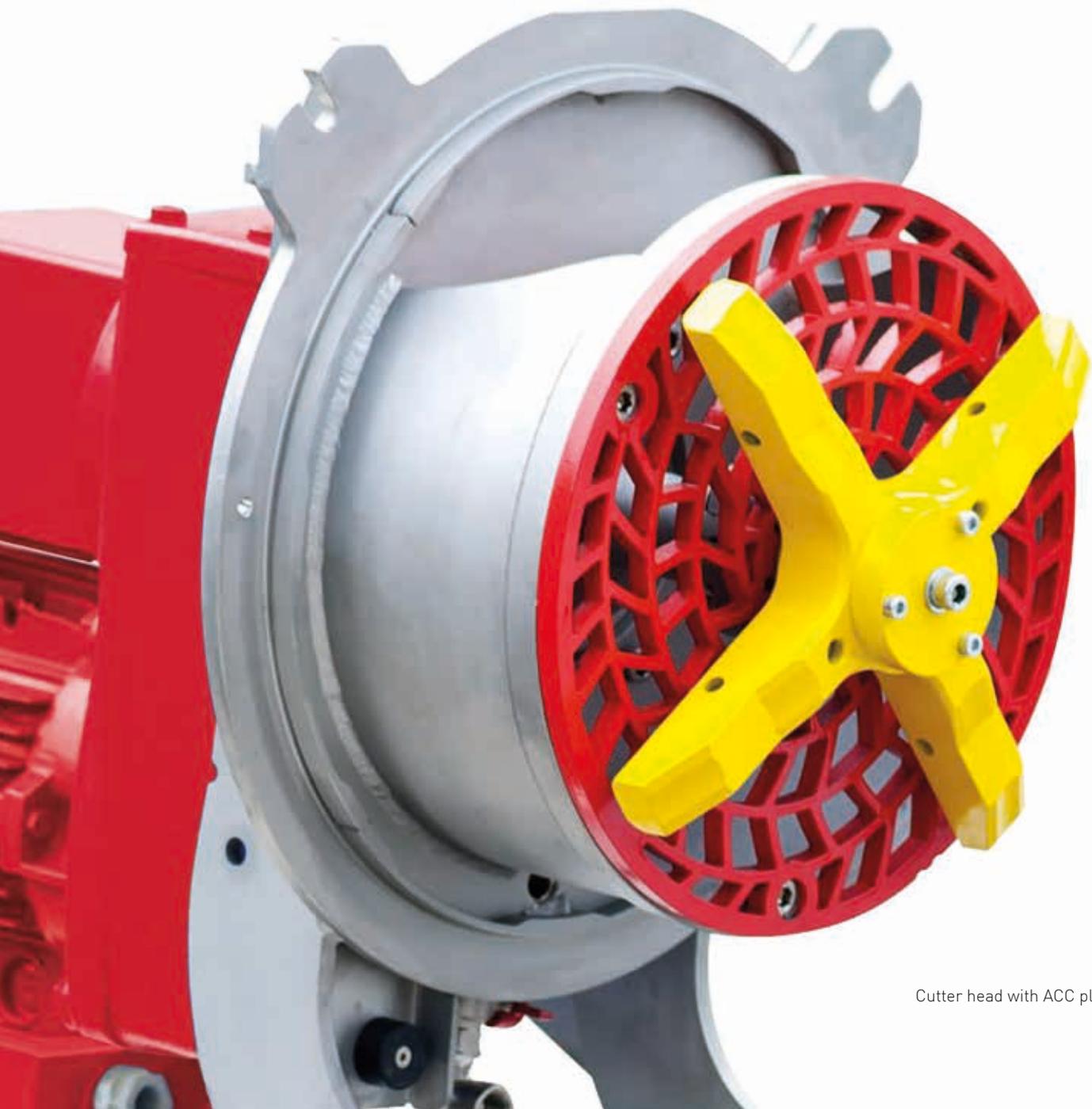
... and rotor subsequently on-site.  
All without disassembling pipeline parts

#### CC series advantages at a glance

- Easy-and-quick service with an extremely compact footprint
- No disassembly of piping
- Seal replacement without opening the pump
- Quality Cartridge mechanical seals
- Sturdy cardan shaft with protective sleeve

# Strong preprocessing for safer processing

The sturdy Vogelsang RotaCut® for  
cutting and heavy-material separation



Cutter head with ACC plus

Not all waste materials from food production are suitable for pumping after just one grinding step. In particular, fish, meat and vegetable waste often contain coarse matter, including particles of plastic or metal. This can lead to malfunctions or failures in downstream pumping elements, which can be prevented by using a RotaCut.

#### How it works

The RotaCut combines two functions: separating and cutting. While the medium flows continuously through the RotaCut, heavy material such as stones or metal parts are separated out by gravity and then effortlessly disposed of through a cleaning port. In addition, floating and suspended (fibers, hair, bones, wood, entangled material) are transported to the cutting screen by the liquid flow and chopped down by rotating, self-sharpening cutting blades.

Depending on the application, it may be possible to adjust the unit individually to the medium to be pumped and the desired size-reduction ratio by selecting suitable rotor types, cutting screens and separators.



Vogelsang uses its proprietary software to calculate the optimized geometry for every size-reduction ratio. For you this means you always get the best geometry for smooth running, with minimal wear. The cutting screens are produced from wear-resistant special steel and are reversible.



#### ACC® – Automatic Cut Control

Automatic Cut Control ensures consistently excellent cutting in the RotaCut. During cutting, it is important for the cutting blades to press against the cutting screen at a constant pressure. This prevents fibers and other coarse matter from slipping under the cutting blades and causing blockages; as a result, ACC automatically adjusts the cutting blades and keeps the necessary contact pressure constant – as high as necessary and as low as possible. This significantly increases the lifetime of the cutting blades and eliminates the need for manual adjustment.

In the ACC plus version, the system also provides information about the condition of the cutting blades. Information about the cutting blades' remaining lifetime is displayed on the unit or it can be transferred to the central control system.

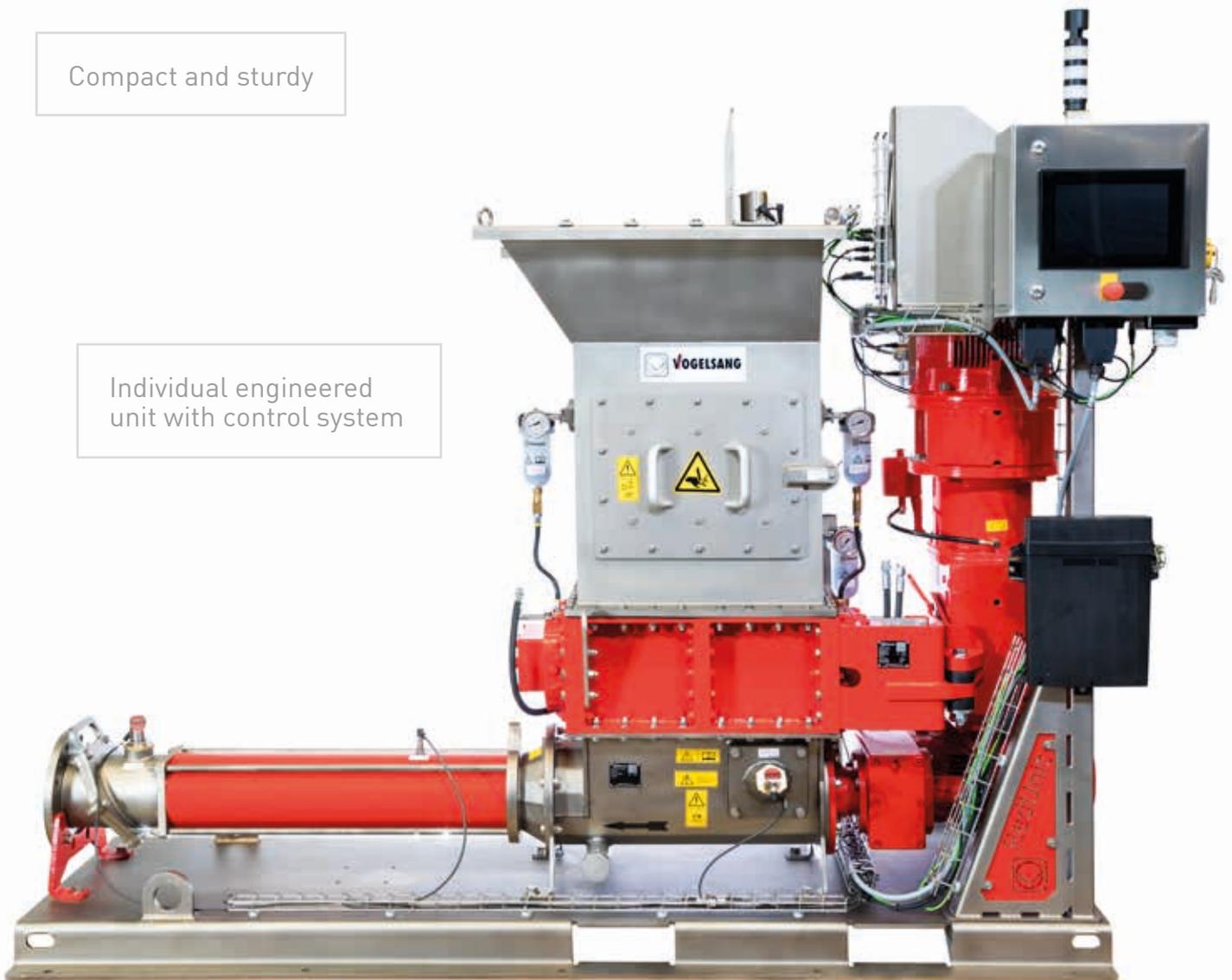
#### RotaCut® advantages at a glance

- Reliable cutting of fibrous and coarse matter
- Foreign-matter protection for all downstream components
- Secure protection of downstream pumping devices

Grinding in an even particle size

Compact and sturdy

Individual engineered unit with control system



Lower electricity consumption

RedUnit processes solid matter into pumpable media

# Turning great jobs into small matters

## The Vogelsang RedUnit custom combinations

As a combination of Vogelsang particle size reduction technology and pumps, the RedUnit is one of a kind. It provides coarse and fine reduction of high-volume dry solids down to a media that can be easily treated for further uses. The RedUnit is the individual engineering solution from Vogelsang for solids reduction requirements, and it is totally customized depending on the needs of each application.

The RedUnit is a complete system so there is no need for additional pumps or screw conveyors between the different grinding stages. This leads to lower electricity consumption. Vogelsang uses the most advanced sealing technology in their products: the Quality Cartridge. Thanks to its unique construction, it incorporates all seal components, thus ensuring that all elements are replaced when the cartridge is changed.

### **We offer the best solution to solve your problem**

Every industry has different problems. We know that, and we engineer and supply a customized solution that is the best option for each application. With your grinding and pumping requirements, our team of highly qualified engineers will offer you the best solution for your production plant.

This can include one or more grinding stages, one or more pumping units, a standard hopper via a belt conveyor or a hopper for direct feeding via a screw, a well-engineered control system with “plug and play” possibilities, and many other options.



# Smart combination, perfect build

## The RedUnit components and their possible arrangements

The combination between the grinder RedUnit XRL and a progressive cavity pump from the CC series is one of the most demanding solutions for applications where an even particle size is required. It can be supplied with a downstream macerator RotaCut for a more defined particle size reduction. The feeding system can be also adapted to the requirements of the existing production plant.

The fluid is first feeded into the grinder RedUnit XRL through a hopper. It is then processed in the twin shaft grinder and pumped thanks to the progressive cavity pump of the CC series.

### Examples of application of this combination:

- Grinding of fish heads and bones in an even size for production of fish flour and oil to be used as pet food
- Grinding and further pumping of citrus peels (orange, lemon) for pectin production to be used in the food industry
- Grinding of cow bones and the internal parts of animals as intestines in a slaughterhouse to feed a biogas plant



Many more possibilities! Contact us for an individual engineered solution.

## Individual components



### RedUnit XRL

The RedUnit XRL provides the efficient treatment of bulk material and solid matter. It reduces possible blockages and makes maintenance fast and easy. The RedUnit XRL in the RedUnit can be used as a first reduction step for large volume material.



### CC series®

The CavityComfort progressive cavity pump is perfect for highly viscous and abrasive media, and media with a high proportion of large foreign matter. The CC series in the RedUnit can be usually used as a discharge pump.



### RotaCut® RCQ

The macerator RotaCut is the ideal solution for fibrous matter, as well as for heavy matter in pump media. The RotaCut RCQ can be usually used for fibrous media containing foreign bodies, or when a reduction in fine solids is needed.



### VX-series

Vogelsang rotary lobe pumps from the VX series are positive displacement pumps designed to be especially resistant and easy to maintain. The VX series in the RedUnit can be usually used as feeding pumps when more fluid is needed.

## Some possible combinations



### RedUnit XRL

The easiest solution consists of a grinder RedUnit XRL. It includes also the required control system used to optimize the efficiency of the complete unit. This solution is used when the customer needs a size reduction of big amounts of bulk material and solid matter. It can be used, for example, for grinding slaughterhouse waste, potatoes and sugar beets, or even for frozen vegetables.



### RedUnit XRL + VX series

We can deliver a system consisting of a grinder RedUnit XRL plus a rotary lobe pump from the VX series. This is a perfect solution for slaughterhouse applications with smaller throughputs and smaller hopper requirements, for example, chicken or ducks, or any other small waste without big bones or hooves.



### RedUnit XRL + CC series

One of our most demanding solutions consists of a grinder RedUnit XRL plus a progressive cavity pump of the CC series. This solution is used when there is a need for pumping after the first grinding stage or when the medium to pump is less liquid and has a higher dry-matter content. This combination can be used, for example, for grinding fish heads and bones to produce fish flour and oil.



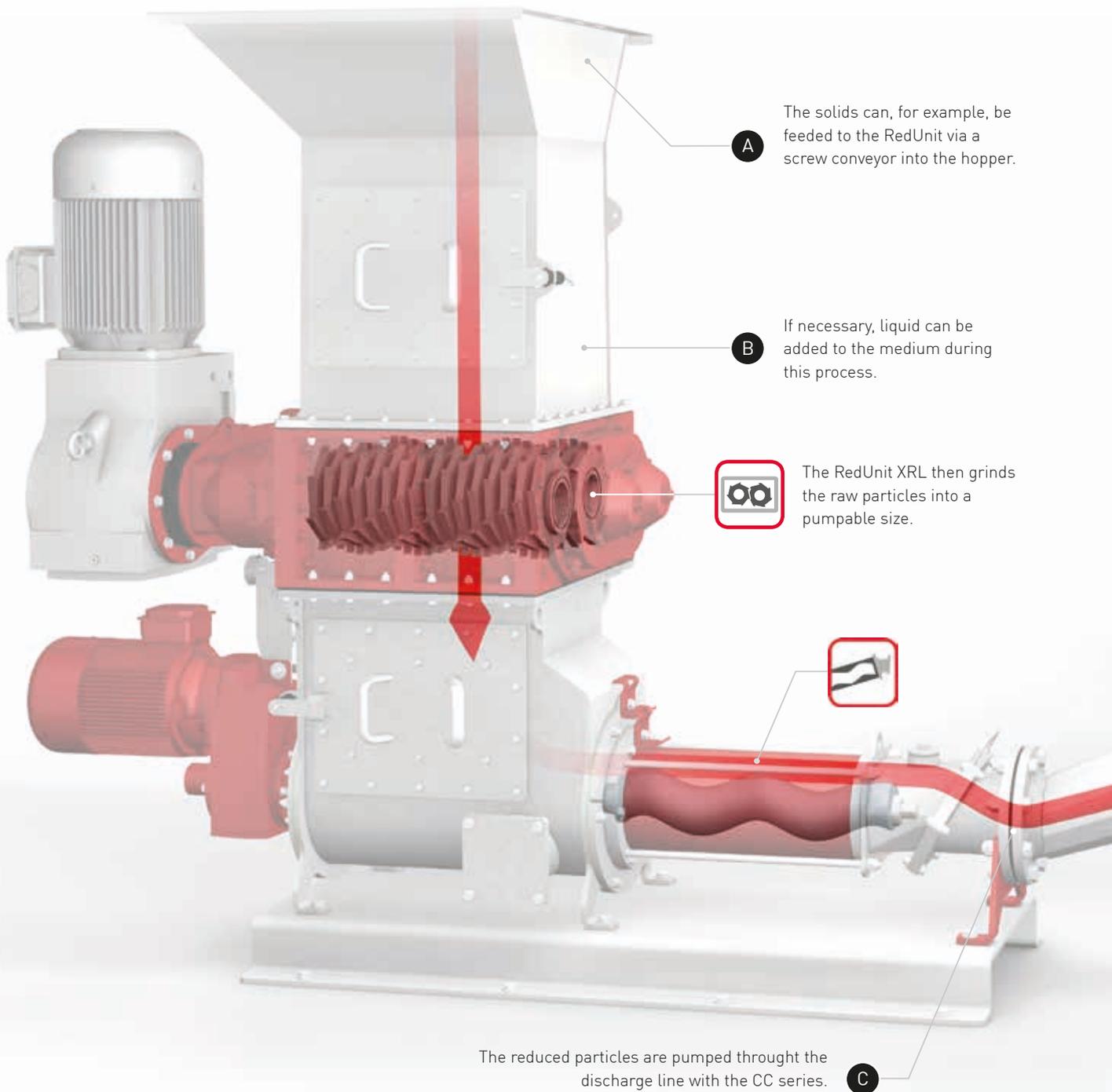
### RedUnit XRL + CC series® + RotaCut® RCQ

For some applications there exists the possibility to supply the system RedUnit XRL plus CC series with an included downstream macerator RotaCut. This is the perfect solution for supplying an even particle size in small spaces with a maximum flexibility.

We design every unit customized to meet the requirements of each application. Contact us for an individual engineered solution!

# Powerful combination

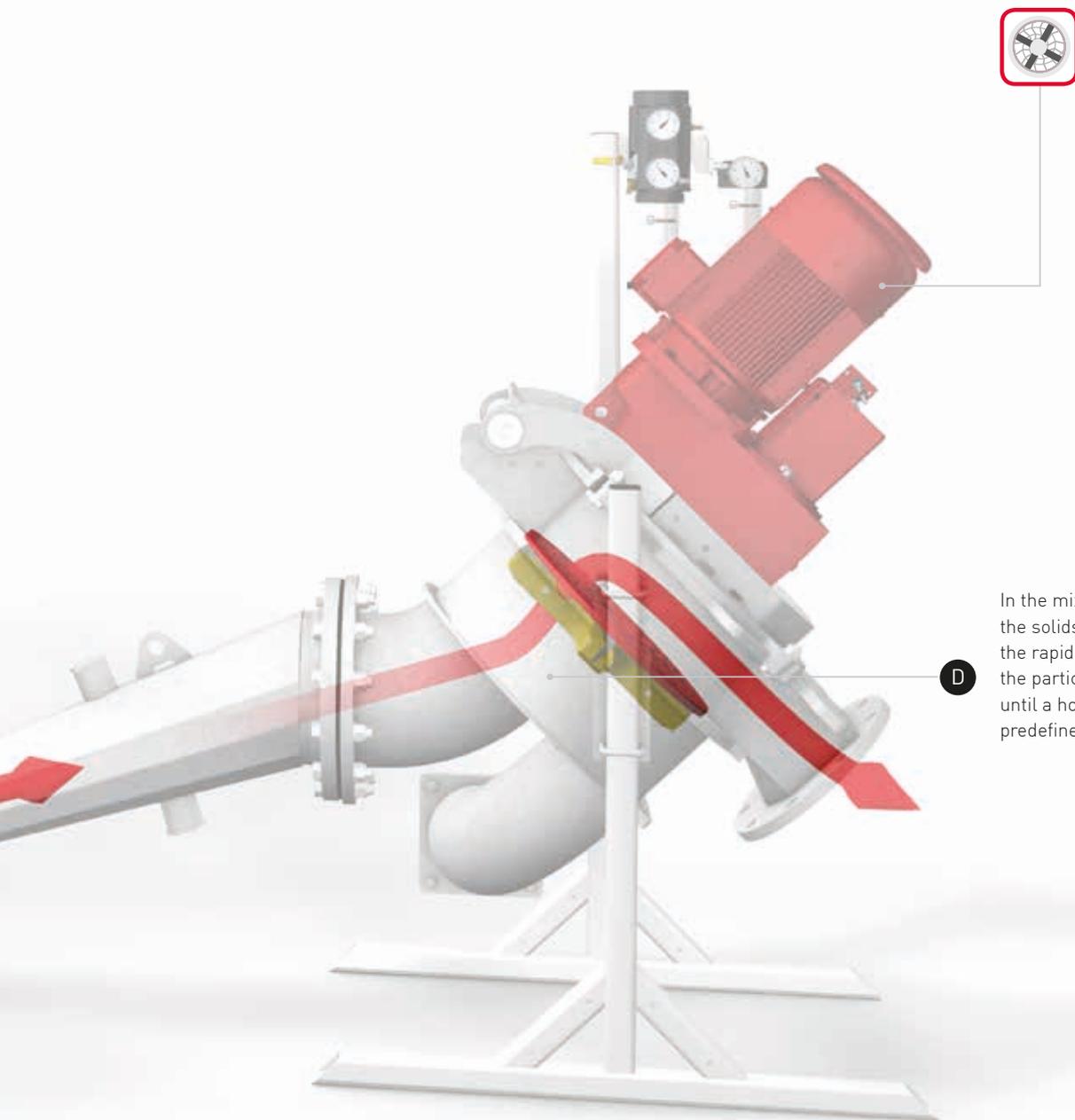
Makes coarse fine and homogeneous





### RedUnit XRL + CC series® + RotaCut® RCQ

This configuration of the RedUnit reduces the particle size of coarse material in one step and mixes the medium with liquid if necessary to make it suitable for the prepare subsequent processes. The resulting product is pumped into the conveyor pipe. If necessary, a wet grinder can be installed downstream in order to make the medium even finer.



In the mixing area of the **RotaCut**, the solids are separated thanks to the rapid rotation of the rotor and the particle size gets reduced further until a homogeneous mixture with a predefined particle size is obtained.

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# When it comes to service, we leave nothing to chance

**Comprehensive services for smooth operation and a long lifetime**

## **Support and supply from A to Z**

Because we are aware that close customer proximity is essential for our mutual success, we design our services to best meet your needs. In Germany and in countries where we have subsidiaries, Vogelsang service centers and contractual partners generate an active dialog with our customers and provide reliable support.

This means you always get the precise support you need in every phase of our partnership. Our highly qualified staff make it possible – experts such as consultants and technicians who know your Vogelsang machines inside and out.



Since its establishment in 1929, Vogelsang has become an internationally recognized mechanical engineering company with numerous branches, sales centers and subsidiaries.



### **We think ahead**

Thinking ahead in your best interest begins with our extensive and detailed product documentation. Spare parts are available within a short time due to our high degree of vertical integration in production. In addition, you will always find an authorized service partner in your area who can help with repairs and wear part replacement. The Vogelsang ServicePack completes the offer. Whether you need start-up, on-site training, training at the Vogelsang facility, or full service support with a maintenance contract and a wear parts service package – we offer a support program tailored specifically to your needs.

## What we offer

We provide solutions in the following sectors:  
AGRICULTURAL TECHNOLOGY, BIOGAS,  
INDUSTRY, TRANSPORTATION, WASTEWATER



## Our broad range of products and services

- Consulting and service
- Data management and control technology
- Disintegration technology
- Individually tailored solutions for special applications
- Pumps and pump systems
- Solid matter feeders
- Spreading technology
- Supply and disposal systems for railway, busses and boats
- Wet grinders and solids reduction as well as separation technology

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