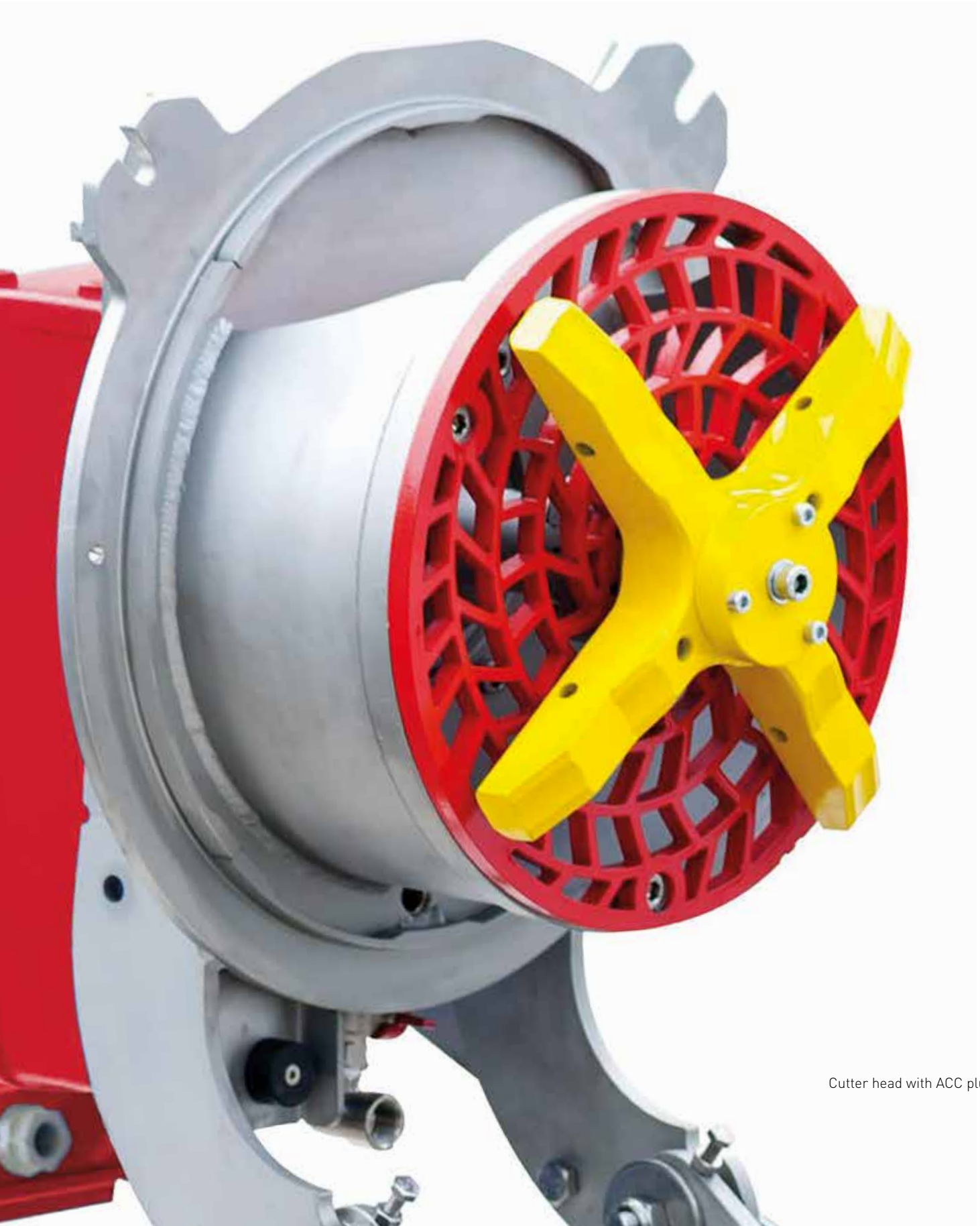
EFFECTIVE WET MACERATION

The Vogelsang RotaCut® with foreign material separator for conditioning processes and plant protection

VOGELSANG



Cutter head with ACC plus

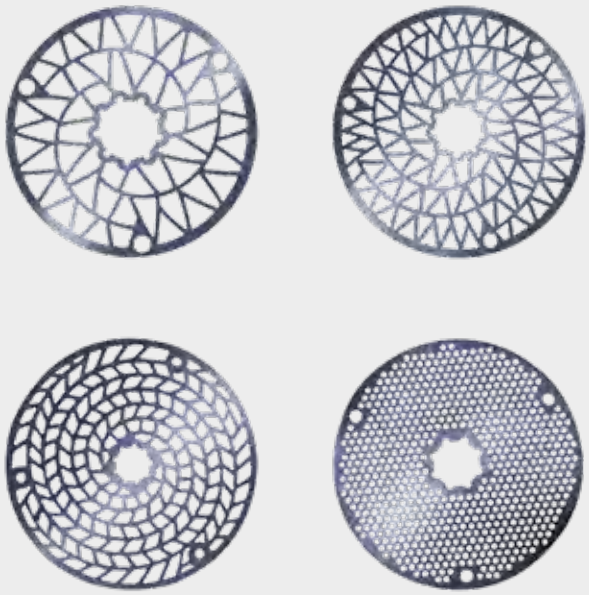
PIONEERING DESIGN WITH LONG-TERM EFFECTIVENESS

The RotaCut® macerator for homogeneous media and reliable plant protection

Whether in the food industry, pulp and paper industry or in abattoirs, efficient maceration of coarse matter and fibrous material in fluid media forms a key component of processes in many sectors. Smooth operation of biogas and sewage treatment plants depends on reliable heavy material separators and maceration of solid and disruptive matter in fluid media. Macerators also significantly impact the cost-effectiveness of agricultural businesses and disposal companies.

Vogelsang developed the RotaCut macerator 25 years ago, and continues to prove its reliability – under the most challenging conditions – around the world. From fecal matter, liquid manure and organic suspensions to potato pulp, food waste and abattoir waste through to sewage and oil sludge – the RotaCut's universal suitability for an ever-expanding range of sectors and applications is constantly tested – and its effectiveness validated.

Its decisive advantage: the RotaCut separates critical heavy matter before the medium being prepared reaches the macerator's cutter head. Thanks to clever details and sophisticated design, the RotaCut can even chop down hair and industrial fibers, thereby reliably protecting all downstream components from foreign matter, as well as fibrous and solid matter.



Innovative screen geometry

Our engineers have developed software that calculates the specific optimal geometry of cutting screens designed for use with a specific medium – for all screen sizes and reduction ratios. This ensures that the cutting screen for your application has been individually tailored precisely to the medium you intend to process. Users therefore enjoy optimal geometry and the best possible results for their application. To augment cost-effectiveness as well, all cutting screens can be used on both sides.

RotaCut advantages at a glance

- Reliable maceration of fibrous and coarse matter
- Foreign matter protection for all downstream components
- Lower mixer and pump power requirements thanks to more homogeneous and flowable medium
- Fully automatic, interruption-free and low-maintenance operation thanks to Automatic Cut Control (ACC)
- Fully automatic monitoring of the unit as well as automatic fault elimination with PCU (optional)

Size reduction technology

The RotaCut has many applications as a macerator. Fibrous and coarse matter are filtered through the cutter head of the RotaCut with the flow of the pump medium. The sophisticated cutting-screen geometry and an innovative blade-guiding system enable reliable maceration and an extremely smooth cutting result. The fluid and the solid matter it contains are turned into a pumpable, homogeneous suspension. The RotaCut is also a very effective tool for homogenizing heterogeneous media. It can be used in the food industry, in slaughterhouses, biogas plants and wherever suspensions with stable consistencies are required. The RotaCut even safely macerates hair and industrial fibers.

Protection from foreign objects

An important function of the RotaCut is protection from foreign objects by means of an effective heavy material separator. Stones or metal parts that cannot be macerated are safely retained and channeled into a collecting container. Thus, important components such as pumps, pipework, etc., are thoroughly protected.

The principle

The RotaCut combines two functions in a single machine. It separates and macerates, which transforms fluids laden with fibers, solid matter and foreign materials into pumpable suspensions. While the medium continually flows through the RotaCut, heavy material such as stones or metal parts are separated out by gravity. They are easily removed later through a cleaning port. All floating and suspended substances within the medium (fibers, hair, bones, wood, entangled material, whole plant silage or grass) are transported to the cutting screen by the liquid flow and macerated by rotating, self-sharpening cutting blades. The medium is homogenized at the same time.

Blade and rotor construction

The blades inside the RotaCut are made of wear-resistant, martensitic stainless steel and positioned against the RotaCut cutting screen in a self-adjusting manner. Thanks to the clever design of the blade holder in the rotor there is constant contact between the blades and cutting screen. Combined with the optimized blade arrangement, this guarantees low-vibration during operation, along with high efficiency and cost-effectiveness.

Simple maintenance

Like all Vogelsang machines, the RotaCut is designed for low and easy maintenance. All wearing parts, including the blades, are easily accessible and can be replaced in a few simple steps.

The functional principle of the RotaCut®

The medium flows steadily through the RotaCut macerator. Foreign matter (stones, metal parts, etc.) is separated out based on its size or weight and can be easily disposed of later via a cleaning port. All floating and suspended substances within the medium (fibers, hair, bones, wood, etc.) are transported to the cutting screen by the liquid flow and chopped by rotating, self-sharpening blades.

While the medium flows continuously through the RotaCut, heavy material, such as stones or metal parts, are separated out by gravity while fibers and solid matter are evenly macerate while the medium is homogenized.

Examples of tested RotaCut applications:

- Preventing rags and layers in digesters
- Protection from foreign objects as well as waste-water treatment during vacuum extraction of small wastewater works or at sewage stations
- Maceration of abattoir waste and by-products, including treatment prior to sanitation in accordance with EU Directives
- Protects tankers from foreign matter and fibers in sludge, liquid manure, food waste, etc.
- Increase in efficiency and gas yield in biogas plants through digestion and homogenization of organic suspensions
- Protection of mobile pump systems from foreign objects and coarse matter

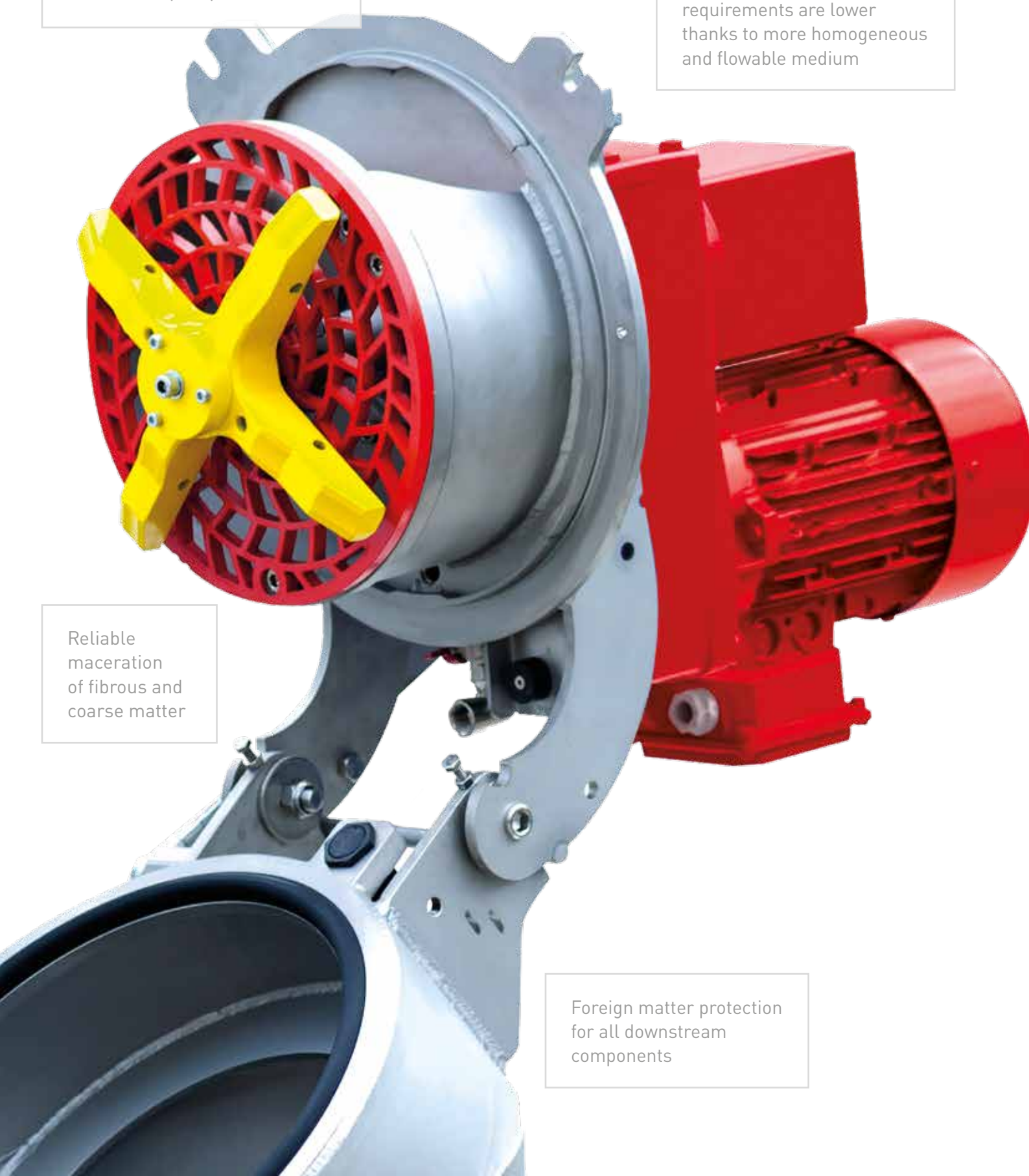
PLANT PROTECTOR WITH SAVVY

The RotaCut® for cost-effective maceration and foreign material separation

Fully automatic monitoring of the unit as well as automatic fault elimination with PCU (optional)

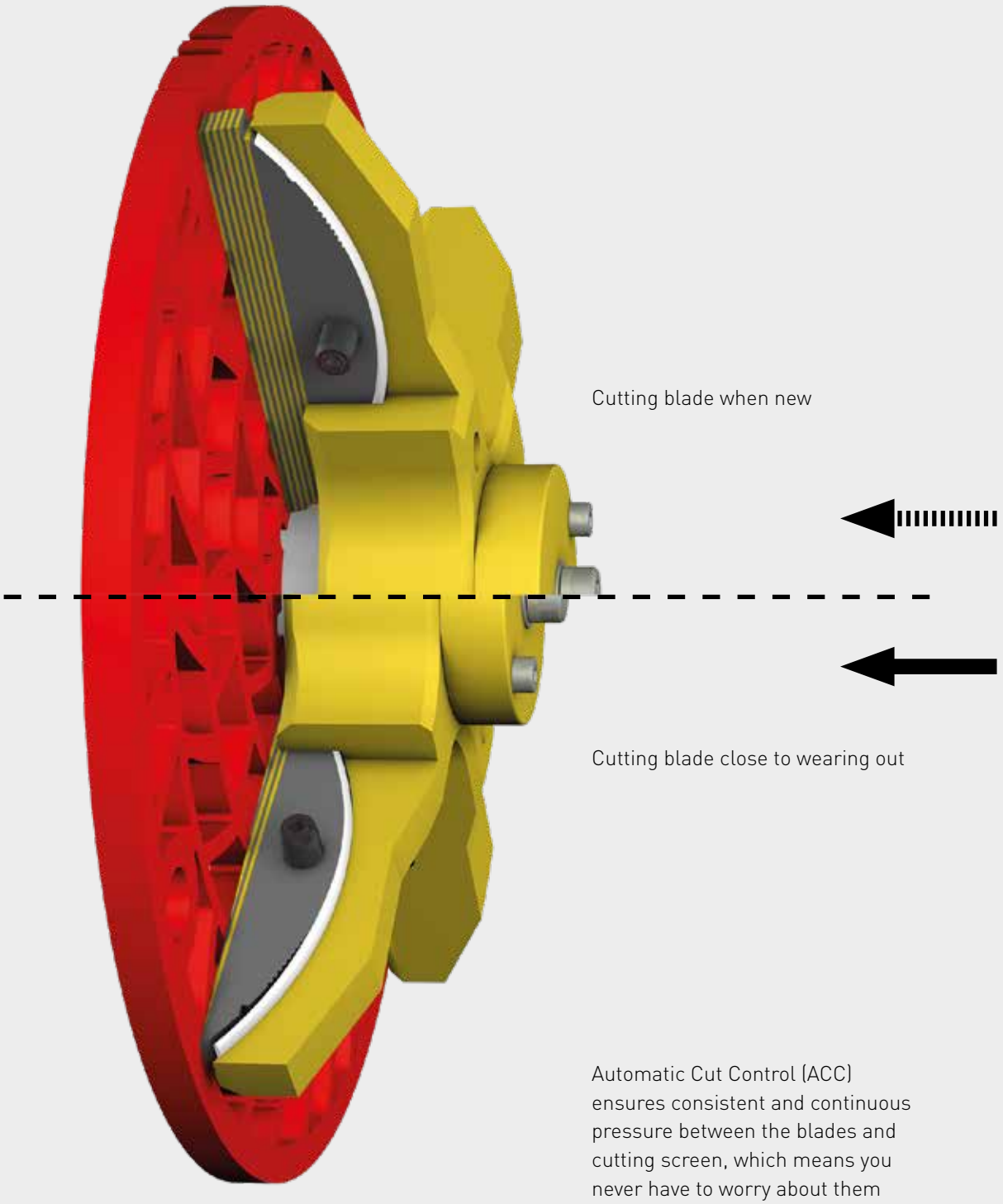
Fully automatic, interruption-free and low-maintenance operation thanks to Automatic Cut Control (ACC)

Mixer and pump power requirements are lower thanks to more homogeneous and flowable medium



Reliable maceration of fibrous and coarse matter

Foreign matter protection for all downstream components



Cutting blade when new

Cutting blade close to wearing out

Automatic Cut Control (ACC) ensures consistent and continuous pressure between the blades and cutting screen, which means you never have to worry about them wearing out.

CONSISTENT PRESSURE FOR MAXIMUM PERFORMANCE

ACC® automatic cutting pressure control for uninterrupted performance

ACC® – Constant performance, long service life
Automatic Cut Control (ACC) consistently ensures excellent cutting performance by the RotaCut. There's no need for manual maintenance as the ACC automatically adjusts the cutting blades of the RotaCut and keeps the necessary contact pressure constant – as high as necessary and as low as possible. This means the pressure can be adapted to the medium at any time without interrupting operation, which not only reduces power consumption requirements, but also reduces wear and significantly extends the lifetime of the cutting blades.

Always informed with ACC® plus
The optional ACC plus feature enables online monitoring of the RotaCut for the RCQ and RCX series. An external display and/or the control graphically indicates the status of the cutting blades and informs you when the blades require changing, so you can plan spare part orders and maintenance well in advance. Thus, ACC systems provide efficiency gains and the greatest degree of automation for continuous use applications.

ACC® advantages at a glance

- No manual blade adjustment required; fully automatic, uninterrupted operation
- Contact pressure can be adapted to the medium at any time without interrupting operation
- Low operating costs thanks to minimum wear and low power consumption
- Optimal results due to consistently high cutting performance and constant size-reduction ratio

GREATER EFFICIENCY THROUGH INTELLIGENCE

Modern control technology for automated plant operation

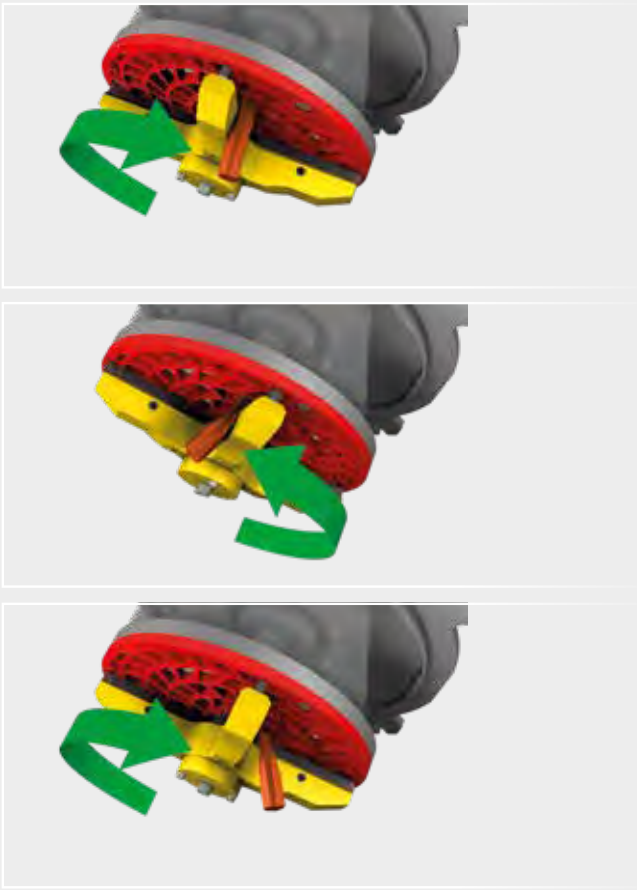
Performance Control Unit (PCU)
If multiple pumps and grinders are grouped together into one unit, the PCU checks operation of each component, as well as other parameters. It ensures optimum communication between individual pumps and grinders and continuously monitors their loads. Individual components are controlled to ensure that the unit as a whole achieves optimum results. The PCU automatically detects faults early on and rectifies them before they pose a problem.

PROFINET enables the control system to communicate rapidly with higher-level systems, thereby enabling central collection and evaluation of detailed operating data. The OPC UA interface enables platform-independent data exchange or access for remote maintenance. The user-friendly Human Machine Interface (HMI) incorporates visual elements for intuitive user navigation, providing rapid overviews of operating statuses, data and settings.

Operators benefit from fully automatic control of operating parameters that can respond independently to various situations. Moreover, because PCU monitoring isn't limited to any one location, it can even control pumping stations located at a distance, and unmanned sewage treatment plants.

Auto-Reverse function
Auto-reverse enables the RotaCut to react promptly when it comes into contact with coarse and hard extraneous materials. The system detects any blockage in the macerator and reverses the rotational direction of the blade rotor. Another cutting attempt then occurs from the other side of the disruptive matter. This process is repeated until the blocking matter is macerated.

Another helpful function: Automatic reversal of the direction of rotation on a regular basis means that the pair of cutting edges in use at the screen and blades is always sharp, as it has been ground on the reverse side beforehand. As the operator, you benefit from optimal cutting performance and simultaneously reduced power consumption.



Thanks to the Auto-Reverse function, the system detects any blockage in the cutting head and reverses the rotational direction of the blade rotor. This process is repeated until the blocking matter is macerated.

Advantages of the Auto-Reverse function at a glance

- Increased efficiency through reduced power requirements
- Lower operating costs
- Reliable operation thanks to automatic blockage elimination

PCU advantages at a glance

- Reduced maintenance thanks to autonomous operation and automatic remedying of disruptions
- Fully automatic and situation-dependent control of operating parameters provides maximum efficiency
- Longer service life means lower operating costs
- High throughput

Individually configured for optimal results

The right design for every task

Whether compact and mobile or fixed in a pipe system, the variety of RotaCut combinations provides a solution for any pump and maceration technology task even with protection from foreign objects.

For optimal adjustment of your RotaCut to the intended area of use and specific application, we offer a wealth of options. Five series and six sizes in various designs, as well as numerous cutting screen sizes, rotors and blade shapes are available. Users can also select their choice of material and drive type, ensuring their RotaCut macerator is tailored to precisely meeting their needs. Amidst all the choices, all of our systems have two things in common: excellent performance and unique ease of maintenance.

Cutter head design

RotaCut® RC

The economical basic version

The tried-and-tested basic series of the RotaCut. For more straightforward applications the RC series delivers reliable and economical maceration of fibers and disruptive matter as well as separating out heavy material.

- Wastewater
- Food industry
- Liquid manure
- Floating matter
- Sludge
- Disposal & recycling

RotaCut® RCpro

The economical version for demanding applications

The RCpro series is designed for reliable and economical treatment of media with high solids and fibrous matter content, e.g., in industry and biogas plants. The stable design of the cutter head, clever features such as the cutting screen support, as well as useful options for the cutting blades, blade rotors and cutting screen make the RCpro series an economical solution when conventional cutters are not powerful enough.

- Organic suspension
- Floating matter
- Sludge
- Disposal & recycling
- Food industry
- Liquid manure

Separator designs

RotaCut® Inline

For end-to-end performance

- Intake and discharge directly opposite – therefore "in (a) line"
- Pressure max. 2 bar (depending on size)
- For media with moderate fiber and solids content
- For media with low, heavy material content
- Primarily used in wastewater technology, sewage treatment plants, industrial applications

RotaCut® Cyclone

Optimally separates out heavy material

- The medium flows in from the side, rotates and flows off through the cutter head
- For applications that require high separation performance
- Pressure max. 0.5 bar
- For media with low to moderate fiber and solids content
- For media with moderate to high heavy material content
- Primarily for applications in the agricultural sector as well as in wastewater technology

RotaCut® RCQ
The easy-to-maintain and user-friendly solution

The RCQ series RotaCut models are suitable for sewage treatment plants, wastewater technology or industrial applications.
The cutters can be easily and conveniently monitored online with modern control technology. With the optional ACC plus, the status of the cutting blade is also monitored and visualized on an external display.

- Wastewater
- Disposal & recycling
- Food industry
- Sludge
- Floating matter

RotaCut® RCQpro
The easy-to-maintain and user-friendly solution for demanding solid reduction

The perfect series for efficient treatment of course and fibrous matter in liquid media with effective protection from foreign matter and heavy material. They are the ideal solution for reliable and cost-effective conditioning of media with high solid matter and fiber content. At the same time, they offer excellent ease of maintenance and operation.

- Organic suspension
- Sludge
- Food industry
- Disposal & recycling
- Floating matter
- Liquid manure

RotaCut® RCX
The powerhouse

The RCX series macerators represent the logical further development of the RotaCut. With flow rates up to 1,200 m³/h, they epitomize cost-effective size reduction in rugged applications in tight spaces. The RCX types feature extremely robust motors as well as solid and sturdy designs, allowing use on the discharge side at up to 6 bar.

- Organic suspension
- Food industry
- Liquid manure
- Disposal & recycling
- Sludge

RotaCut® MXL
Size reduction on the go

- Simple to integrate onto vehicles
- Service and maintenance access via large service flap
- Pressure max. 0.5 bar
- For media with low to moderate fiber and solids content
- For media with moderate to high heavy material content
- For installation on tankers

RotaCut® Compact XL
Robust, even for high foreign object content

- For applications that require high cutting and separation performance
- Pressure max. 4 bar
- For media with moderate fiber and solids content
- For media with high heavy material content
- Used in biogas plants and industrial applications

RotaCut® RCX
The powerhouse

- Universal design for high throughput
- Service and maintenance access via pivoting service flap
- Pressure max. 6 bar
- For media with moderate to high fiber and solids content
- Optionally available with Debris Removal System (DRS) for heavy material removal during ongoing operation
- Used in biogas plants, industrial applications and wastewater technology

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
- Solids reduction, separators and mixers
- Spreading technology
- Supply, disposal and cleaning

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Effective wet maceration_EN_09207719_500_MET0573 – Printed in Germany

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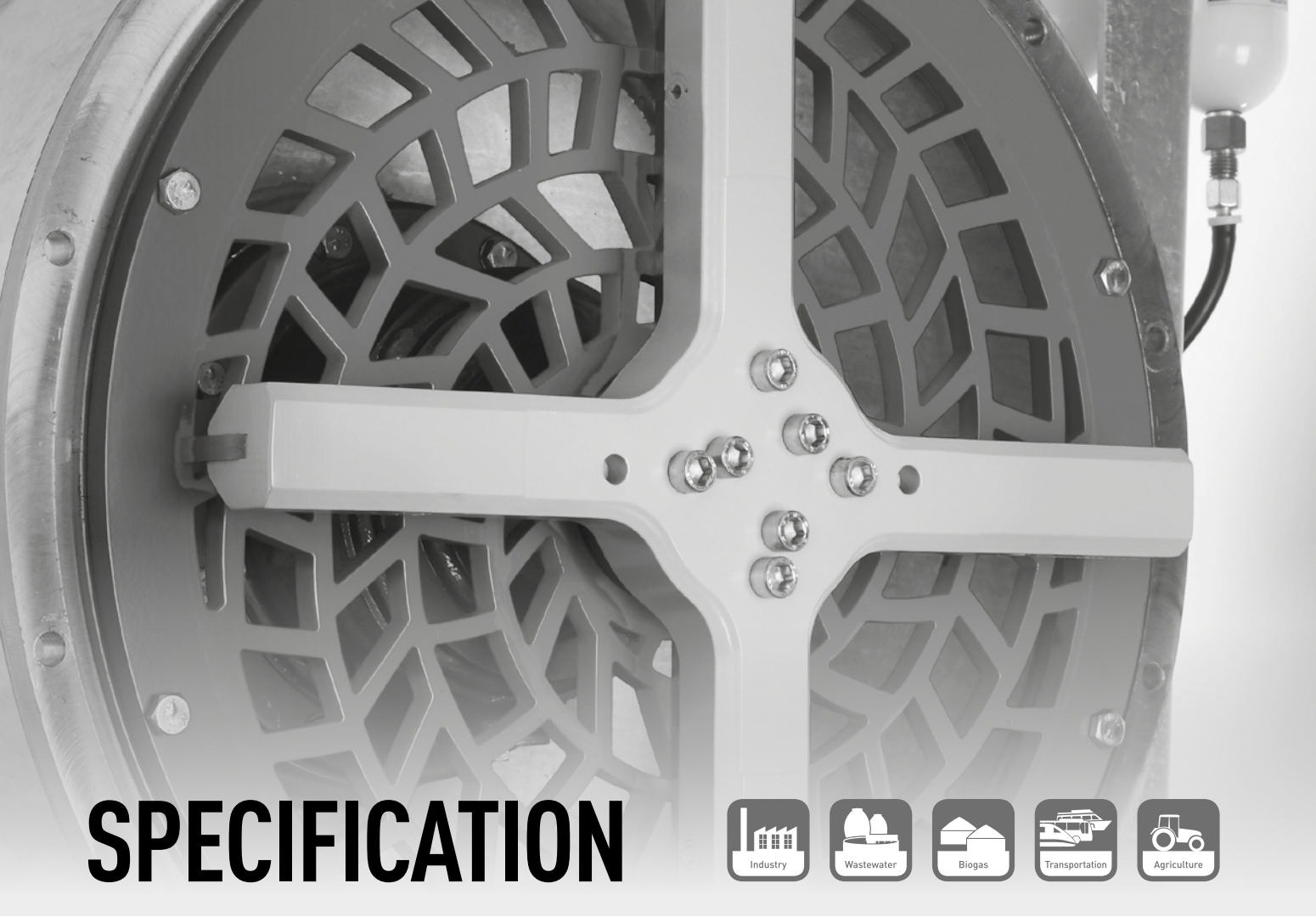

SPECIFICATION

Industry | Wastewater | Biogas | Transportation | Agriculture

EFFECTIVE WET MACERATION

The Vogelsang RotaCut® with foreign material separator for conditioning processes and plant protection

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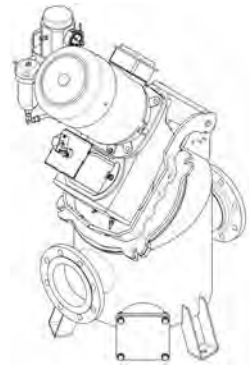
RotaCut®

The RotaCut® macerator with integrated heavy material separator – for reliable processes and reduced costs



Type	Max. throughput	Optional speed	Optional drive power	Required oil pressure	Required oil quantity	Heavy material separator / available design	Cutting screen with available free passage
	m^3/h	min^{-1}	kW	bar	l/min		mm
Electric driven							
RCQ-20G	90	87 – 320	1.1 – 2.2			Inline	10/15/20
RC 3000	180	76 – 326	1.5 – 4.0			Inline, Zyklon	4/8/10/12/15/20/28
RCQ-26G	180	72 – 326	2.2 – 5.5			Inline, Zyklon	4/8/10/12/15/20/28
RC 5000	300	76 – 330	1.5 – 5.5			Inline, Zyklon	4/6/8/10/12/15/24/30
RC 5000pro	300	66 – 330	1.5 – 7.5			Inline, Compact XL	4/6/8/10/12/15/24/30
RCQ-33G	300	72 – 326	2.2 – 5.5			Inline, Zyklon	4/6/8/10/12/15/24/30
RCQ-33Gpro	300	115 – 292	5.5 – 7.5			Inline, Compact XL	4/6/8/10/12/15/24/30
RC 10000pro	600	66 – 319	2.2 – 7.5			Inline, Zyklon, Compact XL	4/8/10/12/16/20/25/34/38
RCQ-43Gpro	600	115 – 292	5.5 – 7.5			Inline, Zyklon, Compact XL	4/8/10/12/16/20/25/34/38
RCX-48	600	114 – 311	5.5 – 11			RCX, DRS	4/8/10/12/16/20/25/34/38
RCX-58	780	94 – 276	7.5 – 15			RCX, DRS	4/8/10/12/16/25/34/40/50
RCX-68	1,200	98 – 243	11.0 – 18.5			RCX, DRS	30/40/50
Hydraulic drive							
RC 3000	180			50 – 70	40	Inline, Zyklon, MXL	4/8/10/12/15/20/28
RC 5000	300			60 – 80	45	Inline, Zyklon, MXL, M/MX	4/6/8/10/12/15/24/30
RC 10000	600			70 – 100	60	Inline, Zyklon, MXL, M/MX	4/8/10/12/16/20/25/34/38
RCX-58	780			90 – 125	75	RCX, DRS, MXL	4/8/10/12/16/25/34/40/50

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