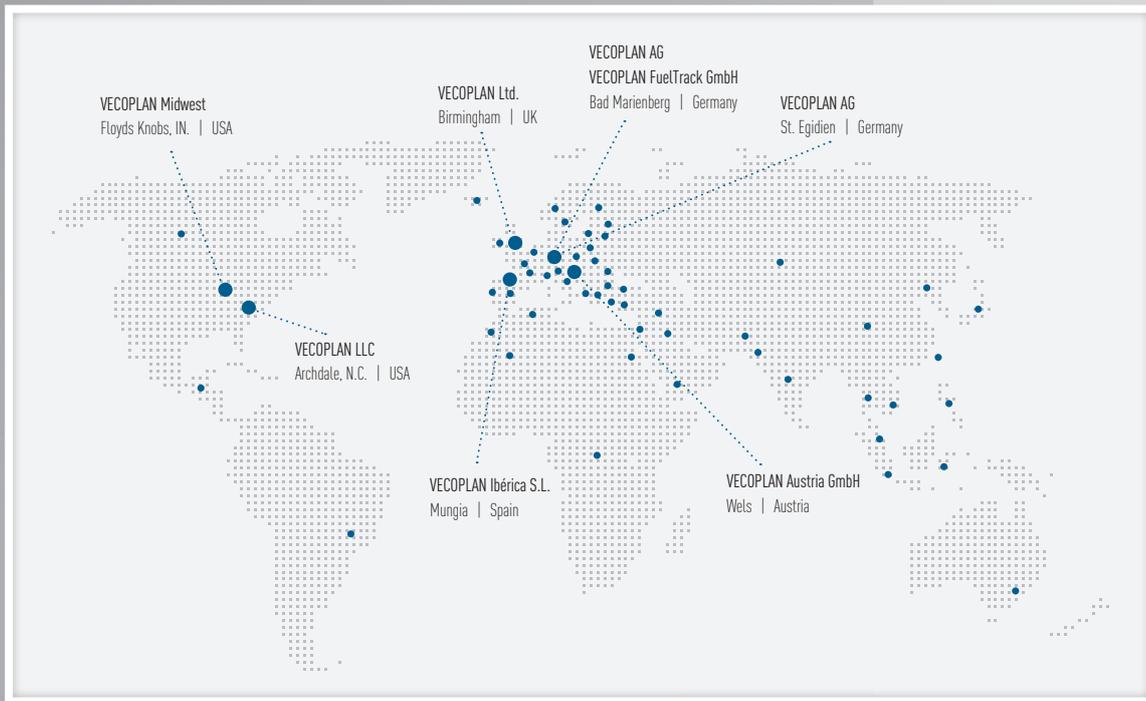




BIOMASS & PELLETIZING

LIBERATING
UNTAPPED ENERGY

Vecoplan[®]



VECOPLAN INTERNATIONAL

Waste avoidance, conservation of resources and efficient use of recyclable materials are among the most urgent challenges and tasks of our time. The importance of environmental awareness and sustainability is increasing on a daily basis. Our company has been successfully tackling these challenges for more than 40 years, and today we are a leading partner in the international wood and recycling business, with numerous subsidiaries and sales offices worldwide.

VECOPLAN AG develops, manufactures and markets technologically sophisticated machines and plants for shredding, conveying and processing primary and secondary raw materials in production processes and recycling. Our customers benefit from cutting-edge technology, made possible by continuous research and development combined with in-house production. Our track record is impressive: a number of patents testify to our know-how. In order to meet the demand for ground-breaking technology and outstanding quality, we have focussed our operations on our core competences. Our Service Division complements this structure.

We take our customers through the entire process, from planning to production, delivery, installation, commissioning and on to maintenance of the complete plant. VECOPLAN AG delivers the highest sustainable quality standards, whether it be an individual machine or complete plant, according to our customers' specifications. Of course, we are certified to EN ISO 9001.

Made in Germany

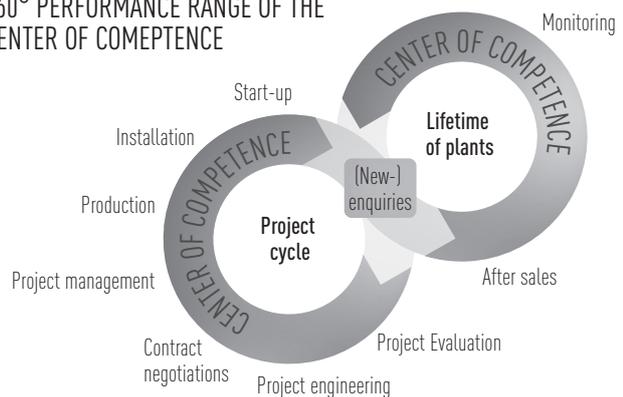


VECOPLAN – FOR THE PROTECTION OF THE ENVIRONMENT

In every renewable raw material lies vast amounts of energy. We at VECOPLAN specialise in the development and production of high-quality plants and machinery for the shredding, conveying and processing of biomass.

Our knowledge and experience are concentrated in our Center of Competence, which keeps a close watch on developments in the Biomass & Pelletizing market segment. In the interests of our customers, we are in a position to respond rapidly to market changes, identify opportunities, work with you to refine specific aspects of products and offer individual solutions. Our service portfolio, from planning to commissioning, includes the complete range of systems technology. From the outset, our Center of Competence provides a professional project planning service and delivery of your systems and plants, all from a single source and to the highest quality standards. On schedule. Promptly. With practical experience and customer orientation.

360° PERFORMANCE RANGE OF THE CENTER OF COMEPTENCE



THE RIGHT SOLUTION FOR EVERY MATERIAL



Bark



Shredded old wood



Bales of straw

Solutions for the processing of:

- silage for biogas plants, cereals, organic waste, green waste, wood chips and bark

VECOPLAN provides a number of innovative technical solutions from a single source for the necessary processing of biomass for recycling and energy generation. The systems and components we manufacture and sell are used for shredding, conveying, screening, separating and storing biomass. The development and manufacture of plants in the areas of biomass processing and pelletizing is technology-intensive. The processing technology is often the nucleus of boiler feeding plants and pelletizing plants.

The products obtained subsequently go on for further processing in the following areas:



Silage/ wood chips/ straw



Biogas production



Pellets



Energy recovery

BIOMASS IS VERSATILE – JUST LIKE OUR TECHNOLOGY

Different source materials place different demands on the technology: VECOPLAN provides a number of innovative technical solutions from a single source for the necessary processing of biomass for recycling and energy recovery.

Our plant components are available in an array of configurations and, as such, can be chosen to suit our customers' particular applications.

Our shredders produce chips from organic waste, wood chips and bark for a wide variety of applications.

Customers value our biomass chippers for pellet production in particular. Pre-shredders are primarily used in the further processing of production waste for energy recovery.

We have the perfect processing solution for each and every application.

Shredding



Example: Double-shaft shredder (WZ)

Conveying



Example: Pipe belt conveyor (VecoBelt)

SHREDDING IS OUR CORE COMPETENCE

Our customers benefit from our experience in shredding technology, which has been accumulated over many years. It is a field we have specialised in ever since the company was founded in 1969. With six types of shredder which differ fundamentally in their structure and form of shredding, we have the appropriate and perfectly tailored shredding technology available for all kinds of biomass.

CONVEYING TECHNOLOGY – TAILOR-MADE

We have all of the belt, chain, screw and trough conveyors to get your material moving. Our product range includes reliable products, optimised for bulk material and piece goods, which help you to convey wood and all other raw and waste materials to their proper destination.

Screening



Example: Oscillation screen (VSS)

GETTING THE MOST OUT OF EVERYTHING

We have the oscillation, disc and star screeners to achieve a level of sorting which would be difficult to achieve manually. A choice of star and disc screening machines is available for sorting out overlengths and large fractions, as are up to 3-deck circular oscillation screening machines, which are capable of separating material into up to 4 different fractions on screening areas measuring up to 9 m².

Separating



Example: Overbelt magnetic separator (VÜB)

FOCUSING ON THE ESSENTIAL

Our separating technology removes everything from your wood which could cause contamination or damage in your process chain. With their state-of-the-art magnet, sensor and air technology, our overbelt magnetic separators, metal detectors and air separators are indispensable parts of your process.



Storing

Dosing



Example: Pull rod



Example: Dosing unit

STORAGE IS NOT AN ART – IT IS A SCIENCE

With our machines, it is possible to fill and discharge storage boxes with a capacity of up to 1,300 m³ per box. We also supply uniquely efficient technology for continuous 24-hour discharging which can be used for heating installations, loading and unloading vehicles from storage boxes, and also for discharging from bunkers. We have loading and unloading conveyors, push and pull rod dischargers, and drag chain dischargers, which means state-of-the-art filling and emptying.

SUPPLYING THE EXACT MEASURE REQUIRES THE RIGHT TECHNOLOGY

We provide highly effective technology for the regulated feeding of wood products. Precise dosing is ensured via vibration technology and screw or push rod dischargers. We develop customised systems which are perfectly tailored to various biomasses and silages.



SHREDDING IS OUR CORE COMPETENCE

Our customers benefit from our experience in shredding technology, which has been accumulated over many years. It is a field we have specialised in ever since the company was founded in 1969 and today we are an international market leader.

Our roots are in the Wood market: our first customers were in the sawmill and furniture industries. The first complete plant which we supplied to our customers in 1973 was a wood recycling plant.

In 1971, we developed the drum chipper and hammer mills with centrifugal wedge clamping system: these shredding machines are used worldwide for producing high-quality chips.

The various sizes of VECOPLAN biomass chipper are suitable for use in sawmills, large chipping plants in the energy and pellet industry, biomass power plants and boiler feeding plants. Where customers require the entire value chain to run smoothly, VECOPLAN, being a system supplier, is a reliable partner. Whether sawmill waste wood, logs, slabs or bark, our shredders offer impressive throughput, low energy consumption, low wearing part costs, low maintenance costs and maximum consistent availability.

DRIVEN BY INNOVATION

The engineers and technicians in our Research and Development department work tirelessly to deliver increasingly superior solutions to meet our customers' varying requirements. A number of patents testify to our technological leadership in the worldwide market.

Since the VAZ was brought to market in 1983, the technology has been refined on an ongoing basis. VECOPLAN also holds a patent for the universal cutting unit (U rotor) developed in 1989. There have been further optimisations since then, including the tramp material protection device, pneumatic-lowering counter knife ("Flipper"), hydraulic bridge-breaker, the patented film and fibre rotor (2002) and the patented

HiTorc® drive with optimised efficiency (2005). Our incentive and driving force is the processing of valuable raw materials for use in recycling or energy generation, thereby preventing damage or harm to the environment. Innovations by VECOPLAN redefine the market time and again. Our engineers and designers are continuously working on concepts and effective solutions for even the toughest assignments.



Centrifugal wedge clamping system

Still an efficient and proven VECOPLAN attachment system

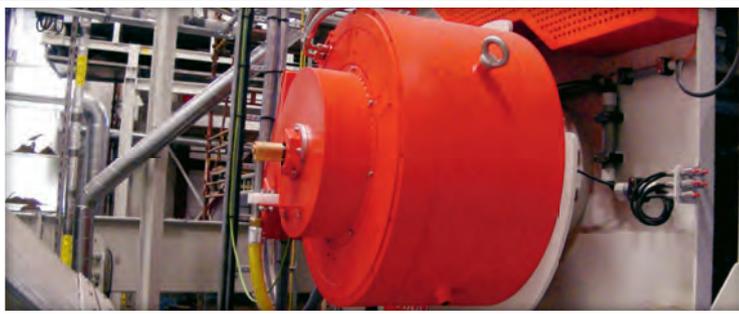
- Quick cutter changing
- Secured fixing
- Solid construction



Profiled solid steel rotor

Profiled rotor for extremely homogeneous and easy-to-convey particle size

- 4-sided rotor tools
- Easy cutter changing
- Insensitive to foreign parts



HiTorc®

Revolutionary shredding technology

- Direct drive motor / permanently controlled synchronous motor
- Greater throughput – lower consumption
- Energy saving of approx. 50 % with pre-shredders
- Current peaks are roughly halved (compared with asynchronous motor)
- Compact / quiet / low-maintenance



VecoBelt

Pipe belt conveyor – for conveying bulk material on the horizontal or on a slight incline

- Continuous distances of up to 400 m
- Low-noise and low-dust conveying as belt enclosed in tube



Toploader

“Wheel loader bucket on rails”

- Fully automatic box emptying
- Discharge via inclined ramp onto downstream conveying technology
- Conveying capacity of up to 100 m³/h



Movable rod system floor

“the drive-on grid”

- Safe solution for tipping bulk material
- Fully drive-on and walk-on
- Conveying capacity of up to 1,000 m³/h

COMPLETE INSTALLATION OF COMPLEX PLANTS

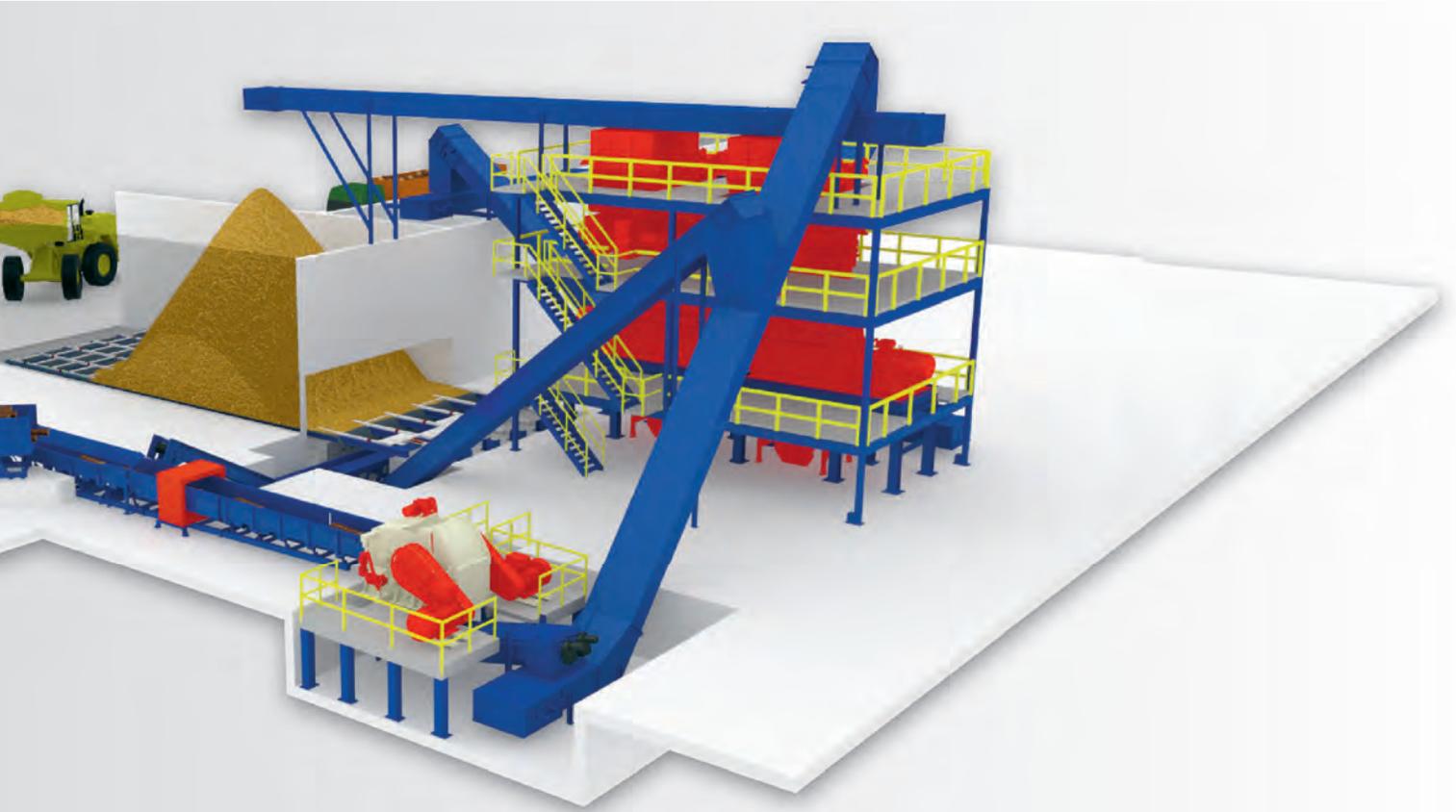


Electrical engineering tasks

- Drawing up of process descriptions
- Assessment and evaluation of regulations, standards and guidelines
- Development of automation/operation and safety concepts, tailored to customer needs
- Drawing up of measuring point and consumer lists
- Planning and manufacture of the switchgear and control elements incl. documentation, programming and parameterisation
- Adaptation of plant-specific software

Project management tasks

- Management of the project commission and, as such, assumption of overall responsibility for the project until final acceptance
- All-embracing coordination of interfaces internally and externally, both the technical and organisational side
- Contract management
- Definition of the project goals in line with customer needs
- Project planning, organisation and control:
 - Assembly of the project team in consultation with the departments
 - Detailed planning of the plant concept in close consultation with the customer
 - Drawing up and updating the project overall schedule
 - Planning of resources in consultation with the departments
 - Responsibility for costs and adherence to budget
- Documentation and reporting
- Preparation and execution of project meetings (both internal and external)
- Handover of project to the customer and, internally, to the customer account manager in After Sales



DURABLE – POWERFUL – SOLUTION-ORIENTED

Be it old wood, cereals, green waste or agricultural crop waste – in every naturally renewable raw material lie vast amounts of energy. Our customers all over the world trust in highly innovative technology from VECOPLAN, which facilitates the economical and efficient utilisation of this energy.

We offer solutions and have the right system for every application. The further processing of naturally renewable raw materials calls for state-of-the-art environmental technology and immense expertise from engineers and designers.

VECOPLAN is an international provider of holistically designed systems and plants to the global biomass and pelletizing industry. Our service portfolio, from planning to commissioning, includes the complete range of systems technology. We configure bunker, conveying and storage systems in conjunction with our customers according to

their individual requirements and to the highest quality standards. In addition, our professional project management service ensures that our customers have a competent team on side to come up with the optimal solution to their complex briefs. Our customers avail of our systems competence in the fields of biomass thermal power plants, pelletizing plants and boiler feeding plants. The durability of a VECOPLAN plant is the product of perfect design and rugged build, resulting in plants and systems with exceptionally long service lives.

VECOPLAN POWER: AN EFFECTIVE SYSTEM

The pelletizing plant at NRW Pellets GmbH is the most modern of its kind anywhere in Europe. By defining the right plant concept from the outset, our specialists lay the foundation that ensures the effectiveness of the overall system.

NRW Pellets GmbH Erndtebrück

Here, VECOPLAN AG supplied both the chipper and fine grinding components as well as the conveying, storage and sorting technology between the individual plant components. The annual capacity is 120,000 tonnes of pellets.





SUCCESSFUL PROJECTS

Around the world, we have completed projects with our customers and partners in the field of biomass processing and pelletizing. Some "best practise" examples:

- NRW Pellets Erndtebrück – pellet production
Capacity: 120,000 t/a
- Heggenstaller –
pellet production and thermal power plant
Capacity: 160,000 t/a
- German Pellets – pellet production
 - Wismar Capacity: 256,000 t/a
 - Ettenheim Capacity: 128,000 t/a
 - Herbrechtingen Capacity: 256,000 t/a
- LINZ AG – biomass plant
Conveying and screening up to 640,000 m³/a
Re-shredding up to 80,000 t/a
- ÖBF – biomass power plant
Chipper capacity: 700,000 m³/a
- San Marco – boiler feeding
Conveying up to 700,000 m³/a
Shredding up to 40,000 t/a
- Kronospan – chipboard industry
Biomass chipper capacity: 1,200,000 m³/a
- Henderson – chipboard industry
Chipper capacity: 30,000 t/a
- FUG Ulm – boiler feeding
Capacity: 140,000 t/a
- Arkaim - pellet plant
Capacity: 250,000 t/a

YOUR JOB IS OUR RESPONSIBILITY



Original parts



Service



Contact



An overview of our service packages:

	Basic	Comfort	Premium
Safety			
Safety review	•	•	•
Safety check	•	•	•
Cost-effectiveness			
Analysis of cost-effectiveness of repair	•	•	•
Travel to and from customer	•	•	•
Storage costs	-	•	•
Guaranteed spare parts prices	-	-	•
Shipping costs of wearing parts	-	-	•
Optimisation			
Information on innovative further development	•	•	•
Availability			
Inspection	•	•	•
Expert condition report	•	•	•
Priority in case of failure	-	•	•
Maintenance (equipment check)	-	•	•
Preventive maintenance (equipment replacement)	-	-	•
Service			
Original parts advice	•	•	•
Technical advice	•	•	•
TeleService (remote maintenance)	-	-	•



INTERNATIONAL NETWORK ENSURES AN OPTIMUM SERVICE

We create synergies and efficiently link the knowledge and experience of our employees in the interest of our customers and their steadily growing requirements. This means we can guarantee fast and reliable technical support for our customers, even at an international level. We carry a responsibility as a one-stop provider of holistically designed plant solutions – and that does not change after our machines have been delivered.

In addition to consulting, project planning, installation and commissioning, our service package therefore also includes intensive training and a well-structured maintenance and customer service. Furthermore, we offer individual repairs and a quick and reliable spare and wearing parts service. So you can rest assured that when you need us we will be there immediately.

We at VECOPLAN plan, manufacture and install your plant from a single source and our rapid and competent

service is available to you round the clock. Our TeleService reliably reaches any location in the world: plant problems can be diagnosed straight away. Settings can be made, data transmitted and errors rectified via the remote maintenance and remote link modules. In this way, we guarantee professional support and thus the maximum availability of your VECOPLAN technology. Our inspection and maintenance packages safeguard your investment. We offer predefined service packages which, of course, can be amended to meet your individual needs.

VECOPLAN AG
Vor der Bitz 10
56470 Bad Marienberg | Germany
Phone: +49 (0) 2661.62 67-0
Fax: +49 (0) 2661.62 67-70
vecoplan@vecoplan.de
www.vecoplan.com