ENGLISH

TIETJEN

It's All About the Grinding

# Particle Size Reduction Technology for Your Application

- Hammer Mills
- Grinding Systems
- Plant Engineering
- Explosion Protection
- Service



MADE IN GERMANY




# THIS IS TIETJEN

Since 1959, we have been developing, designing, and manufacturing hammer mills and particle size reduction technology in Germany.

Complex customer requirements are our specialty. From the initial contact through the delivery of the ideal plant to our after-sales service, we are your expert partner for all types of impact grinding.

**We develop your grinding solution and ensure its implementation worldwide.**


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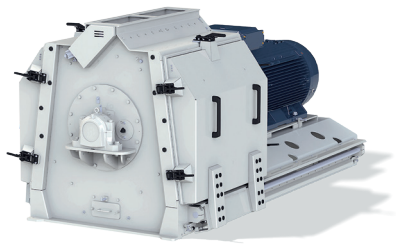
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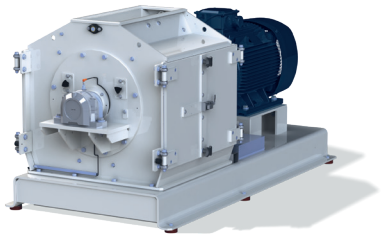
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# We Grind What You Need

**We know that every customer has different requirements and needs. That is why we first seek to understand them. Together with you, we define the goal of your grinding process.**

Our customers benefit from our decades of experience in grinding technology. We deliver proven products, innovative ideas, and grinding solutions specifically tailored to the customer's process.

In addition to particle size reduction, we integrate our expertise in process steps such as screening, sifting, or mixing, as well as the necessary conveying technology, into our plant designs. In our modern, well-equipped Test Center, we conduct test grinds with customer material to demonstrate the achievable grinding results in advance.

Today, our grinding systems are used wherever reliability and a defined particle size distribution are required, including:

- Animal feed production
- High-quality pet food production
- Extrusion of fish and shrimp feed
- Wood processing industry and energy sector
- Food industry
- Ethanol and alcohol production
- Various special applications




# Tietjen Hammer Mills

**Our hammer mills are universal and flexible grinding machines suitable for a wide variety of products.**

Our comprehensive product portfolio covers a wide range of requirements, from coarse to fine grinding and low to high throughputs.

Our mills feature a robust design and proven technology. Many of our machines remain in operation at customer sites for several decades.

The primary focus is on an efficient and economical grinding process. Every mill model is designed for easy maintenance, ensuring high availability.





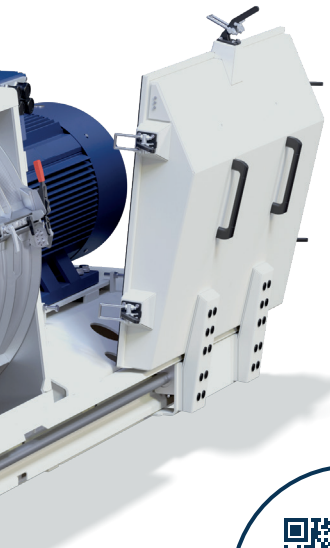
# Your Benefits

## Grinding Process

- Suitable for grinding a wide variety of products
- Particle size distribution adjustable by varying machine parameters (screen perforation, beater configuration, and rotational speed)
- Optimized for coarse and fine grinding depending on requirements
- Additional impact surfaces for optimal particle size reduction and a narrow particle size spectrum
- Beater tip speed of up to 122 m/s

## Operation and Economic Efficiency

- Simple and cost-effective operation compared to other grinding technologies
- High machine availability and long service life
- Maintenance-friendly design with low maintenance and operating costs
- Quick and easy replacement of screens and beaters
- Smooth mill operation due to a specific rotor design with dynamic balancing
- Operation possible in both rotational directions (except SD and HM)
- Stainless steel design available
- After-sales service with decades of spare parts availability



## Machine Safety

- Explosion-proof and flame-resistant design according to ATEX available, shock pressure resistant up to 0.4 bar, Zone 21 (II 2D) inside and Zone 22 (II 3D) outside
- Automatic door locking with standstill monitoring
- Temperature monitoring of bearings and grinding chamber
- Negative pressure monitoring of the grinding system

WEBSITE

# Hammer Mills



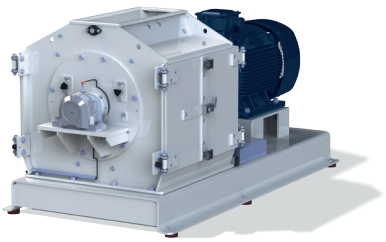
## Hammer Mill VL

- Ideal for lower throughput
- Quick and easy screen change at standstill
- Good accessibility via front door, such as for cleaning



## Hammer Mill HM

- Ideal for lower throughput
- Self-conveying up to approx. 12 m
- Quick and easy screen change at standstill



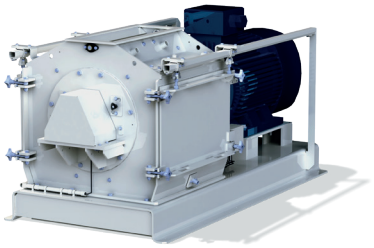
## Hammer Mill VDK

- Universal mill for fine and coarse grinding
- Ideal for medium throughput
- Quick and easy screen change at standstill



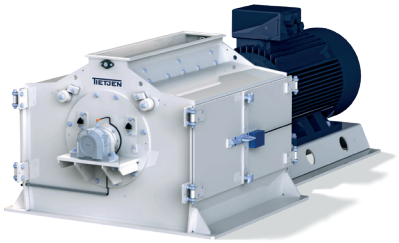
## Hammer Mill LDE

- Ideal for medium throughput
- Quick and easy screen change while idling, two-piece screen basket system
- For changing screen perforations or particle size distributions



## Hammer Mill NDK

- For grinding with simultaneous addition of process water, e.g., in alcohol and ethanol production
- Quick and easy screen change at standstill



## Hammer Mill W

- For grinding moist or sticky products such as wood with up to 60% moisture
- Quick and easy screen change at standstill



## Hammer Mill GD

- Ideal for medium to high throughput
- Quick and easy screen change at standstill
- Rotor with beater frame for quick beater change



## Hammer Mill FD

- Optimized for fine grinding up to < 400 µm
- Quick and easy screen change at standstill
- Additionally extendable impact surface
- Rotor with beater frame for quick beater change



## Hammer Mill GDL

- Ideal for medium to high throughput
- Quick and easy screen change while idling, 6-piece screen with screen basket system
- For changing screen perforations or particle size distributions
- Rotor with beater frame for quick beater change



## Hammer Mill FD Pro

- Optimized for fine grinding up to < 250 µm
- Additionally extendable impact surface
- Quick and easy screen change at standstill
- Rotor with beater frame for quick beater change



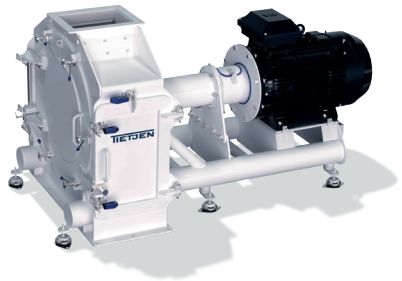
## Hammer Mill GDX

- Maximum flexibility in compound feed production
- For frequently changing requirements in feed structure
- Fully automatic screen change while idling, 4-piece screen basket system
- Rotor with beater frame for quick beater change



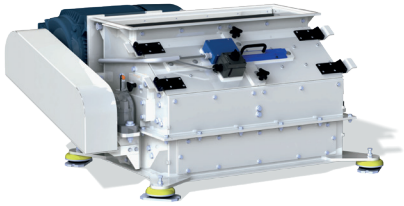
## Straw Mill SD

- For grinding dry and fibrous materials such as straw, hay, or alfalfa
- Quick and easy screen change at standstill
- Rotor with beater frame for quick beater change



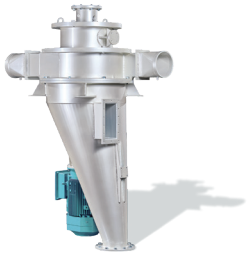
## Hammer Mill XDK

- Hygienic design for food applications
- Designed for thorough wet cleaning
- Faster and easier screen change at a standstill



## Crusher CR 900

- Pre-crushing of hard and coarse components
- Saves energy in the process
- Protects against screen damage during fine grinding
- Flexible use within the grinding system or as a standalone solution



## Windsichter GRC

- For fine grinding in combination with the FD Pro hammer mill
- Fineness of up to 99% < 200 µm possible
- Sharp separation cut and low energy consumption

### Icon Legend

- Compound feed
- Pet food
- Fish feed
- Wood and fibers
- Food
- Alcohol/Ethanol
- Special application

### Color Legend

- Recommended solution
- Possible solution
- Not recommended

## Find our brochures and data sheets online

Technical data, more detailed images, and unique selling points can be found in our data sheets and brochures.

**tietjen-original.com/en/about-us/downloads**

# Our Particle Size Reduction Technology for Your Application

| | VL | VDK | NDK | HM | LDE | W | GD | GDL | GDX | FD | FD Pro | SD | XDK | CR | GRC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Applications** | | | | | | | | | | | | | | | |
| Compound Feed | ● | ● | | ● | ● | | ● | ● | ● | | | | | | |
| Pet Food | ○ | ● | | | | | ○ | ○ | | ● | ● | | | ● | ○ |
| Fish Feed | ○ | ● | | | | | ○ | ○ | | ● | ● | | | ● | ● |
| Food | ● | ● | | ○ | ○ | | ● | | | ○ | ○ | | ● | | ● |
| Wood and Fibers | ● | ● | | | | ● | ● | ○ | | ○ | ○ | ● | | ○ | ○ |
| Alcohol and Ethanol | ● | ● | ● | ● | ● | | ● | ○ | | ○ | ○ | | | | |
| Special Applications | ● | ● | ● | ● | ● | ● | ● | ● | | ○ | ○ | | ○ | ○ | ● |
| **Grinding** | | | | | | | | | | | | | | | |
| Pre-Crushing | | ○ | | | | | | | | | | | | ● | |
| Coarse Grinding > 1000 µm | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | ● | ● | | |
| Fine Grinding < 1000 µm | ○ | ● | | | ○ | | ○ | ○ | | ● | ● | | ● | | |
| Ultra-Fine Grinding < 250 µm | | | | | | | | | | | ● | | | | ● |
| **Screen Change** | | | | | | | | | | | | | | | |
| At Standstill | ● | ● | ● | ● | | ● | ● | | | ● | ● | ● | ● | ● | |
| While Idling | | | | | ● | | | ● | | | | | | | |
| Fully Automatic While Idling | | | | | | | | | ● | | | | | | |

● Recommended Solution

○ Possible Solution

# Feeders

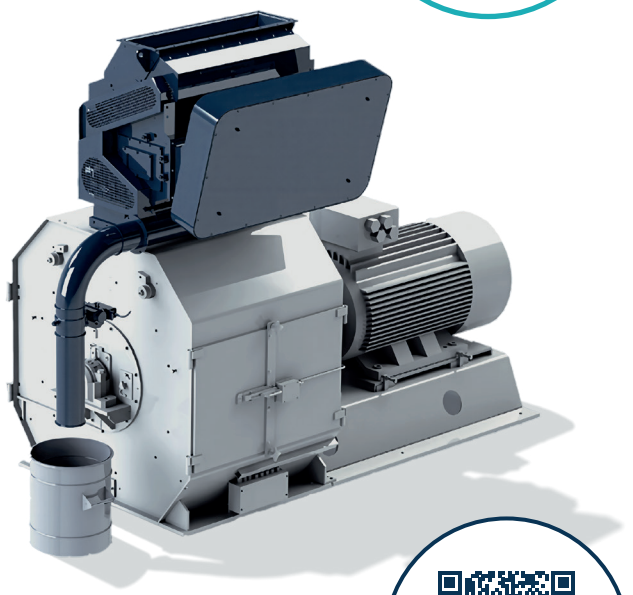
**A hammer mill can only operate efficiently with optimal feeding and dosing of the feed material.**

Distributing the product across the entire width of the mill significantly impacts the grinding process and ensures low-wear operation. In addition, all feeding devices supply the aspiration air required for grinding.

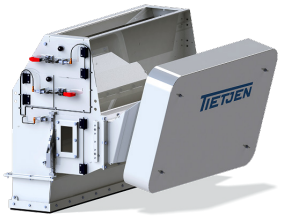


## Your Benefits

- The right feeding system for every product
- Foreign matter separation protects the mill, reducing downtime and spare parts costs
- Easy handling and cleaning
- Load-dependent control for optimal mill utilization
- Explosion-proof and flame-resistant design according to ATEX available, shock pressure resistant up to 0.4 bar, Zone 21 (II 2D) inside and Zone 22 (II 3D) outside



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## Air Gravity Separator AGS

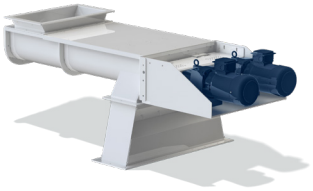
- Suitable for a wide variety of products (pet food, grain, wood chips, etc.)
- Safe operation: Efficient separation of magnetic foreign matter and heavy particles
- Mill feeding in combination with the TTS dosing screw



## Air Gravity Separator AGS AD

Self-cleaning

- Safe operation: Efficient separation of magnetic foreign matter and heavy particles
- Mill feeding in combination with the TTS dosing screw
- Automatic foreign matter discharge on the AGS AD for cleaning without manual intervention



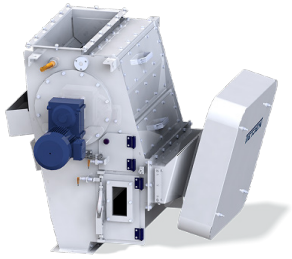
## Dosing Screw TTS

- Available as a single, double, or triple dosing screw
- Load-dependent product dosing to the mill
- Ideal addition to the AGS and AGS AD air gravity separators



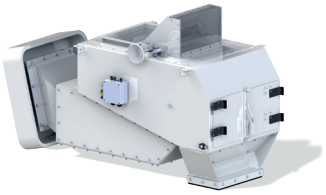
## Drum Feeder DA 5

- Foreign matter separator for free-flowing products
- Separation of magnetic foreign matter and heavy particles
- Load-dependent product dosing to the mill
- Integrated explosion decoupling to the pre-bin



## Drum Feeder DA 3

- Foreign matter separator for free-flowing products
- Separation of magnetic foreign matter and heavy particles
- Load-dependent product dosing to the mill
- Integrated explosion decoupling to the pre-bin



## Vibratory Feeder R

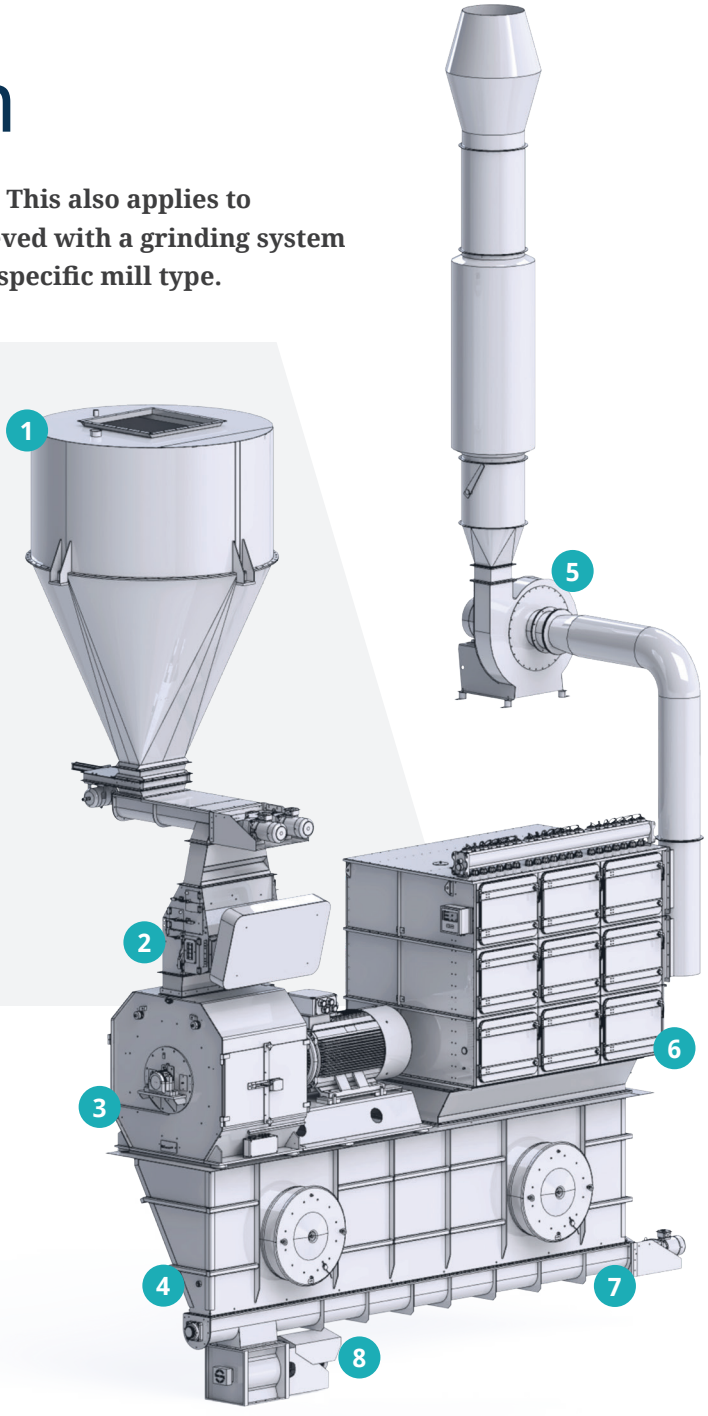
- Universal feeder for a wide variety of bulk materials,
  including poorly flowing products and bulky pieces of material
- Separation of magnetic foreign matter
- Load-dependent product dosing to the mill

# Grinding System

**The whole is greater than the sum of its parts. This also applies to grinding! Peak performance can only be achieved with a grinding system tailored to the individual application and the specific mill type.**

The aspiration of the mill and the conveying of the ground product are just as important as the grinding itself.

For every application, our engineers assemble the right components into a complete system from the raw material to the ground product. In doing so, they primarily consider the product characteristics and the available structural space within the plant.




## Your Benefits

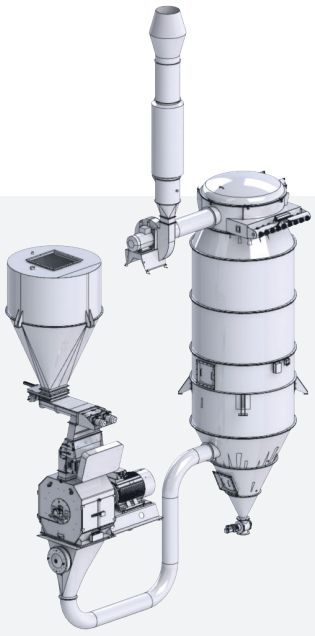
- Optimal grinding results
- High energy efficiency
- Perfectly coordinated components: hammer mill, feeder, aspiration, and product conveying
- Tailored to the specific application
- Mechanical or pneumatic discharge
- Solutions even for difficult installation conditions
- Comprehensive explosion protection concept

# Grinding System with Mechanical Discharge

1. Pre-bin for the unground feed material
2. Feeder for load-dependent dosing of the feed material to the hammer mill, including foreign matter separation and aspiration air intake
3. Hammer mill for grinding the product
4. Underhopper for collecting the ground product. Dust particles carried along with the aspiration air can settle due to low air velocity, minimizing the dust load on the filter
5. Fan for generating the airflow for the hammer mill aspiration
6. Top-mounted filter for separating the dust from the aspiration air. The filter dust is remixed with the ground material via the underhopper and the discharge screw
7. Discharge screw for transporting the ground product out of the underhopper
8. Rotary valve for discharging the ground product and providing an air seal for the grinding plant

## Grinding System with Pneumatic Discharge

In addition to mechanical discharge, there is also the option of extracting the ground product pneumatically after the mill. This variant is particularly suitable for high hygiene requirements, e.g., in the food industry.



Further information on the grinding module:

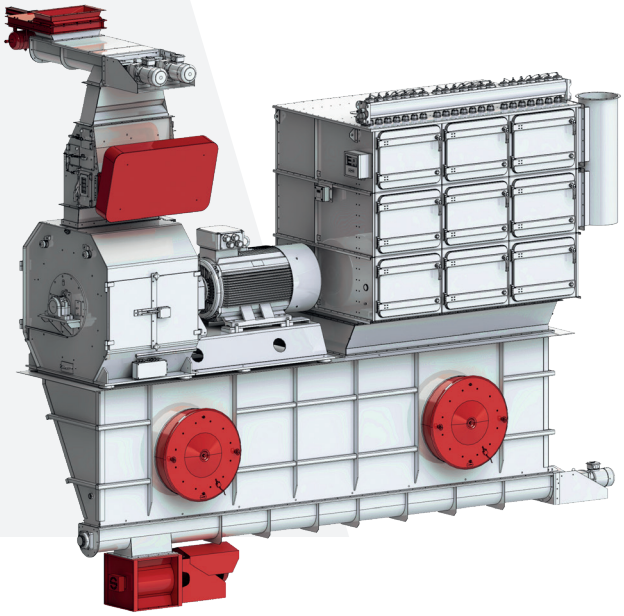
**tietjen-original.com/en/products/machines-particle-size-reduction/grinding-system**

# Dust Explosion Protection

**We place another strong focus on explosion protection. Through our own research and development, we have helped make grinding plants safer today.**

All our mills, crushers, and feeders are shock pressure resistant up to 0.4 bar and flame-resistant.

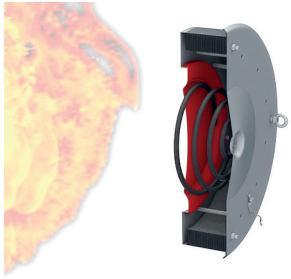
Comprehensive safety is only achieved through a complete concept integrating the components of the grinding plant and the safety technology.
For example, rotary valves approved as a protective system prevent the spread of explosions to upstream and downstream plant sections. Special valves also provide flameless pressure relief for the grinding module. The aspiration air inlet is decoupled from the surrounding environment by our type-tested suction valve.

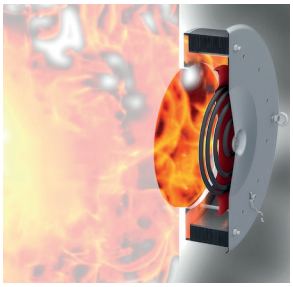


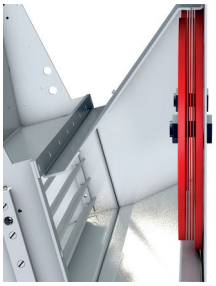
## Flameless Explosion Pressure Relief

In the event of a dust explosion inside bins and equipment, the Tietjen E-VENT pressure relief valve protects the plant from destructive pressure increases. The valve vents the excess explosion pressure from the plant into the installation area. During this process, the flames are efficiently cooled down in a very short time. The radial circumferential flame filter safely dissipates the energy of the flame into the material without blocking the relief path.

The integrated valve disc closes automatically once the overpressure has been relieved. This minimizes the risk of secondary fires in the plant sections.
The integrated safety switch detects the triggering reliably and promptly. This signal is used for an immediate automatic emergency shutdown of the plant and to alert the operating personnel.



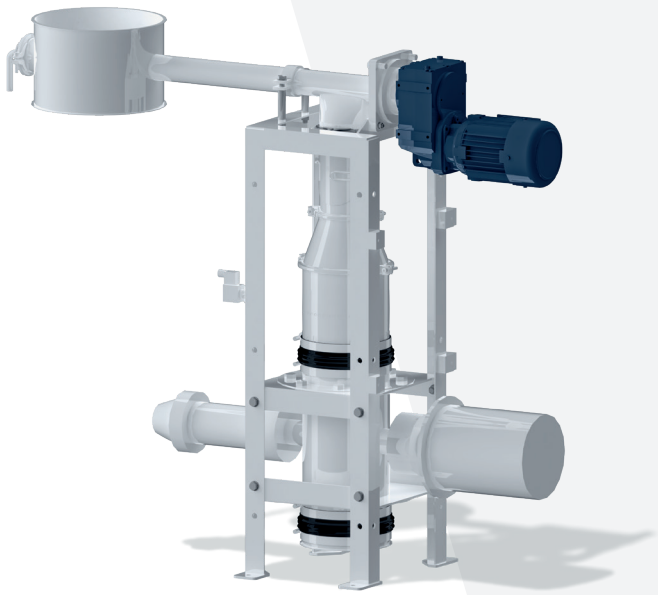






# Online Particle Size Controller

**The OPC online particle size controller continuously extracts samples from the ground product. It analyzes these samples using a camera system and evaluation electronics to determine the particle size distribution.**



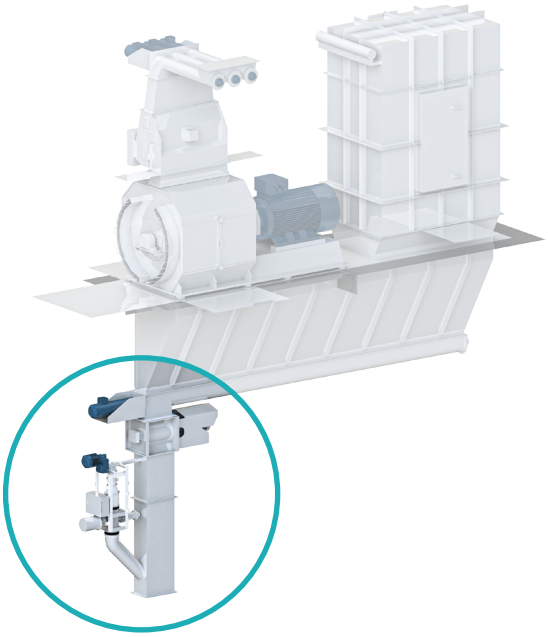
The OPC is a measuring device for the continuous determination of particle sizes in all types of free-flowing bulk materials. It is integrated directly into the hammer mill grinding process.

Ground material is fed to the OPC via a bypass where a camera determines the particle size.
The measurement data is then evaluated in the OPC software, which is available in multiple languages.
If the particle size deviates from the previously defined specification or if a screen failure occurs, the OPC software informs the operator.

This automated and integrated measurement process increases throughput because the grinding process does not need to be interrupted during the analysis. The continuous analysis also improves the quality of the ground material.

The device is made entirely of stainless steel and features its own control box for evaluating the measurement results.

- Evaluating and detecting screen breaks or punctures in the mill
- Evaluating and detecting wear on beaters and screens
- Optimizing maintenance intervals based on changes in particle size during operation
- Output of two alarm or limit values
- Integrated sampling with return flow to the process
- Different products or recipes without recalibration
- Easy retrofitting into existing plants via a flared flange



**Recommended solutions**



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# Plant Engineering

**We do more than just particle size reduction. Our capabilities include screening, classifying, mixing, storing, conveying, and much more. As a solution provider, we look beyond the mill itself. We combine it seamlessly with additional process steps.**

## Your Benefits

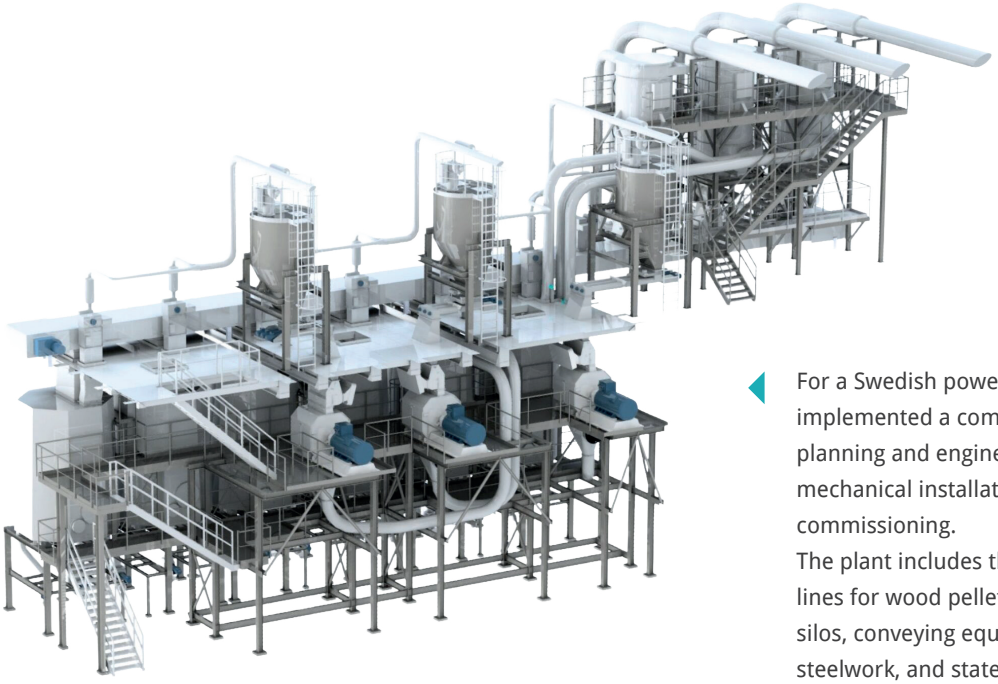
- Complete solutions from a single source
- Minimized interfaces
- Optimal integration of the grinding into the overall process
- Load-dependent control with our mill controller
- Proven process engineering expertise
- Integration of additional process steps
- Consideration of specific conditions such as space requirements, regulations, and occupational safety
- Comprehensive project support through commissioning
- A single point of contact acting as project manager
- Installation services available

Together with our customers, we develop a customized process concept, from the raw material silo to the finished product.

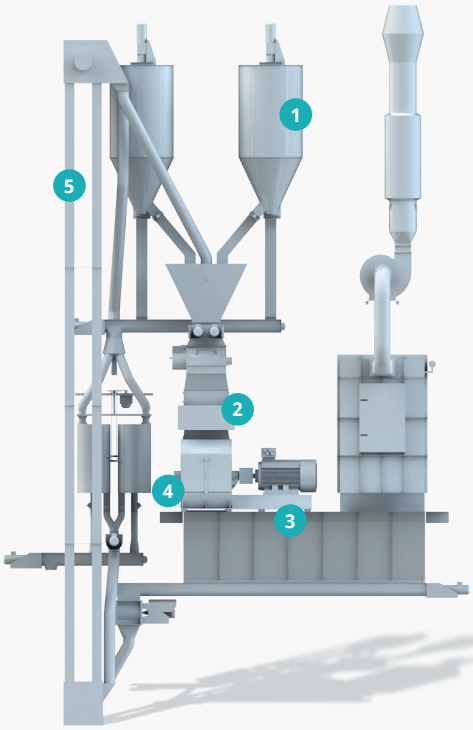
Combining a hammer mill with a suitable screening machine or sifter can contribute to significant energy savings during grinding. It also increases product quality and process reliability.

Mixers homogenize the raw materials prior to grinding, thereby increasing the efficiency of the mill. We also offer solutions for mixing ground products with other components.

We round off our complete solutions with suitable silo and conveying technology, structural steelwork, and control technology. Our engineers and technicians support the realization of your project right through to commissioning.



For a Swedish power plant, we implemented a complete facility from planning and engineering through mechanical installation to successful commissioning.
The plant includes three grinding lines for wood pellets, six wood dust silos, conveying equipment, structural steelwork, and state-of-the-art explosion and fire protection systems.




## Custom Example of a Complete Solution for Pet Food or Fish Feed Consisting of:

1. Pre-mixing for homogenization before grinding
2. Pre-crushing of coarse materials such as beans or pellets
3. Grinding to the required fineness for extrusion
4. Screening machine for control screening of the ground material and returning coarse particles back to the mill. Optionally, the machine can also be used to screen out fines before grinding.
5. Conveying technology for material transport between the individual process steps

Plant for grinding dog and cat food to a fineness of < 800 microns using a Tietjen hammer mill and a cross-yoke plansifter. The plansifter is used both for pre-screening the fine fraction before the mill and for control screening before the extruder. This makes the plant highly flexible and energy-efficient.




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# Tietjen Service

**A machine or plant must produce. That is why excellent service quality and spare parts availability are crucial to minimize downtime.**

## Your Benefits

- Worldwide service
- Installation and commissioning
- Flexible maintenance work, including on weekends and tailored to customer requirements
- Inspection, maintenance, and repair
- On-site and online training
- Process engineering consulting and plant optimization
- Explosion protection consulting

Our service includes professional installation and commissioning, the supply of precisely fitting original spare parts, regular maintenance, and the continuous optimization of your processes.

Whether you need brief information, advice, a few screws, or an annual supply of wear parts, or if you request an inspection or complete installation, we are always by your side at any time.

Because we know every detail of our more than 2,400 installed systems, we can help you quickly and efficiently.

**2.400+**
Systems in use worldwide

**20+ Years**
Guaranteed spare parts availability

**Worldwide**
Flexible on-site and remote support

# Maximum Performance Throughout the Entire Lifecycle!

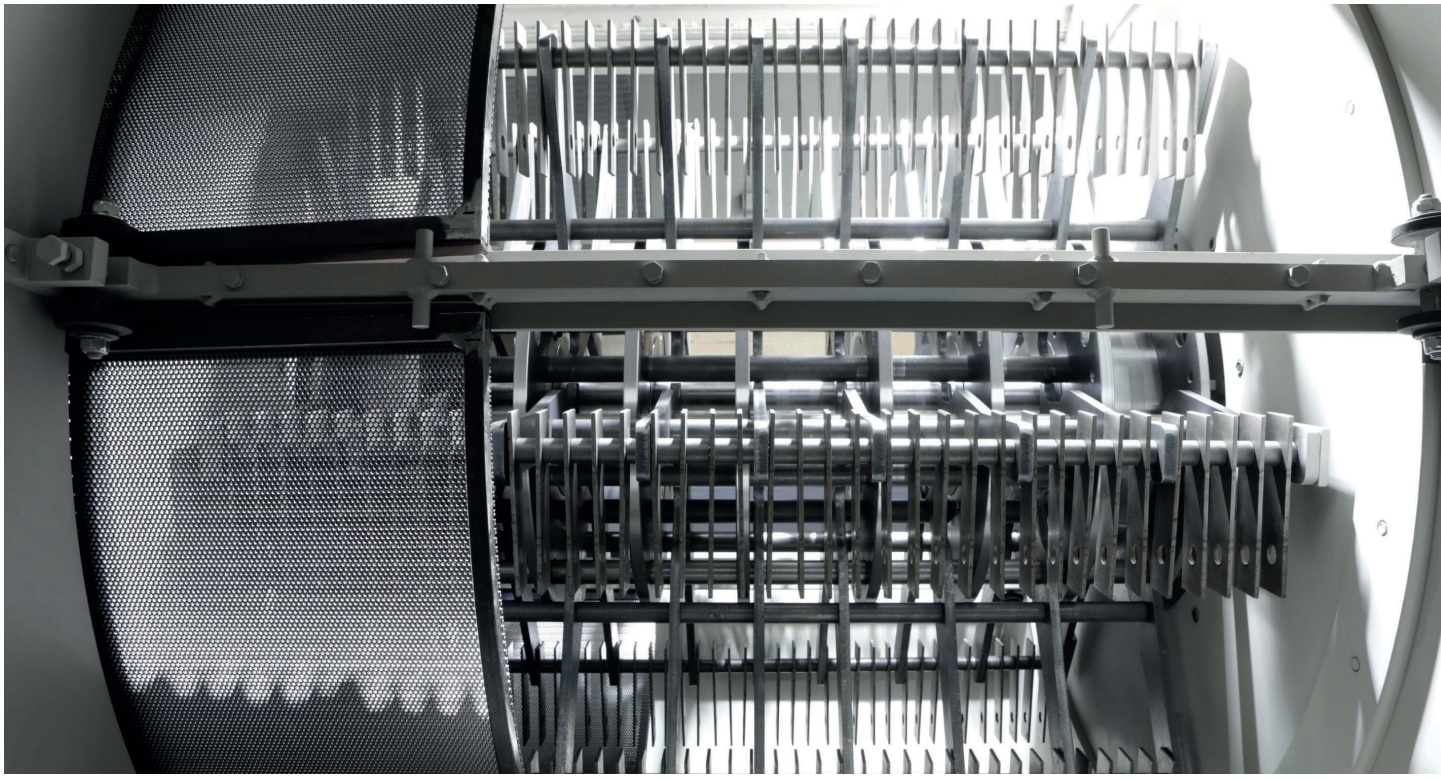
### Field Service & Installation
Worldwide commissioning, inspection, and maintenance with flexible availability, including on weekends.

### System Optimization
Targeted modernization, increased throughput, and improved energy efficiency for your existing grinding plants.

### Tietjen Academy
Practical training and courses for your operating and maintenance personnel, on site or online.

### After-Sales & Spare Parts
Guaranteed spare parts availability for at least 20 years and customized inventory concepts.

### ATEX Consulting
Certified explosion protection expertise, safety audits, and standard-compliant protection concepts directly from the manufacturer.





WEBSITE

# Tietjen Test Center

**At the Tietjen Test Center, you can test your material under realistic conditions. You will receive a clear recommendation for the optimal grinding configuration – ensuring faster decisions, lower risk, and predictable performance.**

## Examples of Applications

- Ultrafine grinding of pet food, including screening and return of the coarse fraction
- Ultrafine shrimp feed in a grinding circuit with a windsifter
- Multistage grinding of wood chips into wood dust for combustion
- We are also happy to test your material. Please contact us.

Our experts combine decades of experience in the fields of animal feed, pet food, food, wood, and biomass to ensure your tests lead to a practical, production-ready solution.

A complete test plant is available, featuring pre-crushing, grinding, screening, classifying, and particle size analysis, all fully validated.

Thanks to our collaboration with partners NEUMAN & ESSER and GKM, our test center is equipped with modern classifying and screening technologies for practical trials.

The windsifter from NEUMAN & ESSER precisely separates particles into fine and coarse materials using an airflow. The GKM triple-deck tumbler screen classifies materials into multiple particle sizes simultaneously, enabling efficient separation of different fractions.

NEUMAN & ESSER

GKM SIEBTECHNIK

# Your Benefits

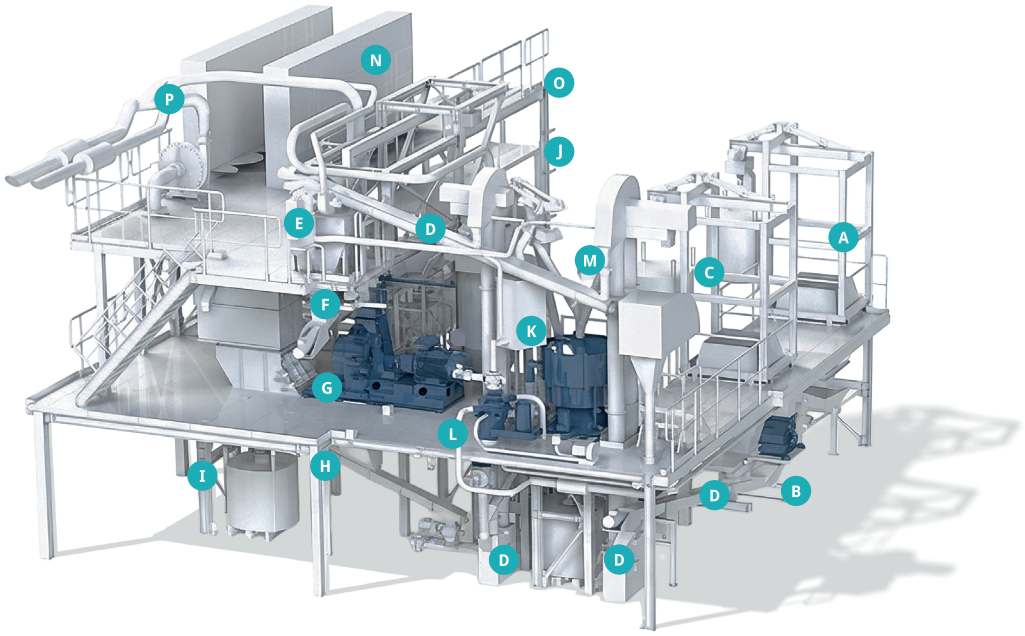
### Intelligent Grinding Starts Here
The Test Center provides the ideal environment for planning new grinding plants, optimizing existing processes, and improving energy efficiency.

### Reduce Risks & Gain Certainty
Make well-founded decisions faster: Tests under realistic conditions provide clear recommendations for the optimal plant configuration, reducing risks and delivering predictable performance.

### State-of-the-Art Equipment
Precise tests under realistic conditions, enabled by high-quality machinery and cutting-edge analysis systems.

### Practical Expertise
Our team works closely with you to understand your requirements and develop tailored solutions.

### Strong Partnerships
In collaboration with NEA and GKM, we combine state-of-the-art technologies with comprehensive expertise.



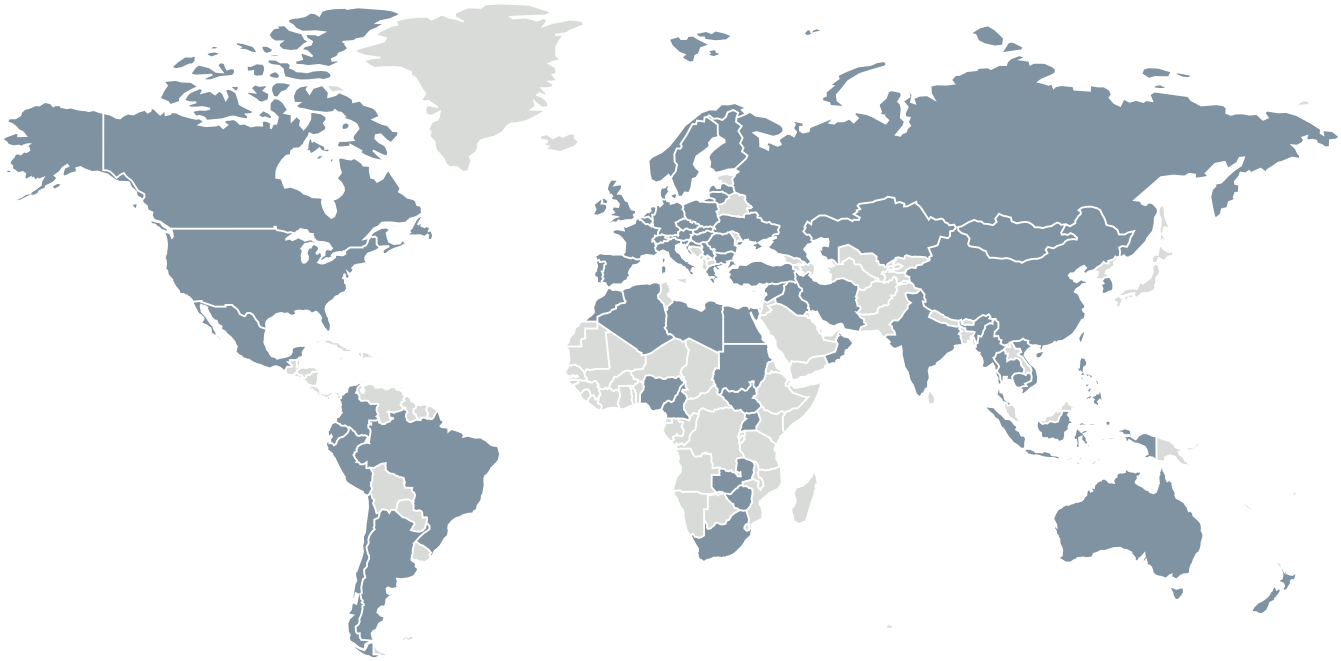

## Our Technology at a Glance

- A Pre-crushing intake
- B Crusher
- C Fine grinding intake
- D Elevator / Chain conveyor
- E Hammer mill pre-bin
- F Feeder
- G Hammer mill
- H Underhopper with filter
- I Rotary valve and big bag filling
- J Tubular chain conveyor
- K Tumbler screen from GKM
- L Windsifter from NEA
- M Online Particle Size Controller
- N Control cabinet
- O Laboratory and meeting room
- P Aspiration

## Plants Worldwide

# Our References

WEBSITE



**More than 2,400 Tietjen hammer mills have been installed worldwide since 1959.
Our customers range from small milling operations to global corporations.
Time and again, we have proven ourselves through our performance and quality.**

ADM · BioMar · Josera. · AGRAVIS · INPASA · de heus · for farmers the total feed business · Connolly's RED MILLS SINCE 1908 · Verbio Biofuel and Technology · PETER KÖLLN · LLOYD S AN MAL FEEDS · ADIMAX



Compound Feed | Canada

## Hammer Mill for Compound Feed Manufacturer

Since 2020, a Tietjen GDL 25 hammer mill has improved compound feed production in a feed mill with an associated agricultural retail center in Ontario, Canada. It is one of many Tietjen hammer mills in North America ensuring a smooth grinding process.



Fish Feed | Vietnam

## Sustainable Production of Fish Feed

The aquaculture market is developing rapidly. The demand for safe and sustainable sources of fish is growing. At its company site in Hai Phong in northern Vietnam, the Dutch feed manufacturer increased its production capacities with a Tietjen FD 25 hammer mill.



Pet Food | South Africa

## Grinding Solution for Pet Food Increases Output

By combining a grinding module and a cross-yoke plansifter, the customer receives a highly flexible and energy-efficient solution. It optimally grinds raw materials for the production of premium pet food for dogs and cats.



Food | Sweden

## Bean Grinding for Gluten-Free Pasta

Since 2017, a large Swedish food manufacturer has been producing bean flour for gluten-free pasta using a Tietjen VDK hammer mill.



Wood and Fibers | Croatia

## Wood Pellets as Climate-Neutral Fuel

Two kilograms of wood pellets have about the same energy content as one liter of heating oil. Pellets help reduce dependence on fossil fuels. Tietjen hammer mills ensure optimal grinding of the wood for the pellet press.



Alcohol and Ethanol | Poland

## Production of Bioethanol

In Poland, Tietjen hammer mills operate in several lines for the production of bioethanol. In addition to grinding, our scope of supply included pre-weighing, conveying technology, control systems, as well as installation and commissioning.

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