

GET FIT FOR THE FUTURE - DRY ORE COMMINUTION TECHNOLOGY

Our dry comminution is flexible, sustainable and energy-efficient.



PIONEER AND PACEMAKER IN VRM GRINDING

LOESCHE VRM for ore grinding

After inventing the vertical roller mill (VRM) in 1928, LOESCHE was the first to introduce the technology into the power, cement, steel, ore and minerals industry. Today more than 2,300 mills are in operation worldwide. The proven LOESCHE VRM provides lots of benefits for ore grinding. Adapted to the tough conditions in mining applications, it combines proven advantages with unmatched flexibility.

SCOPE OF LOESCHE HARDWARE & SERVICES

LOESCHE is a reliable partner for projects ranging from LOESCHE mill delivery to EPC projects for complete grinding plants. LOESCHE offers various services for efficient, predictable and safe plant operation: ranging from welding services to wear management of LOESCHE mills and management of third parties to full Operating & Maintenance (O&M).





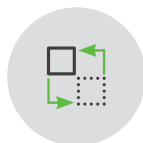
PROVEN FEATURES OF LOESCHE MILLS



HIGH ENERGY SAVINGS



DRY CRUSHING AND GRINDING



COMPACT DESIGN, SMALL FOOTPRINT



HIGH OUTPUT RATES



HIGH COMMINUTION RATIO
150 mm TO 40 μ m IN ONE MACHINE



MILLS IN OPERATION

SPECIFIC ADVANTAGES FOR ORE GRINDING



HIGH FLEXIBILITY, QUICKLY ADAPTABLE
TO CHANGES IN FEED COMPOSITION



LOW SPECIFIC WEAR RATES



STEEP PARTICLE SIZE DISTRIBUTION

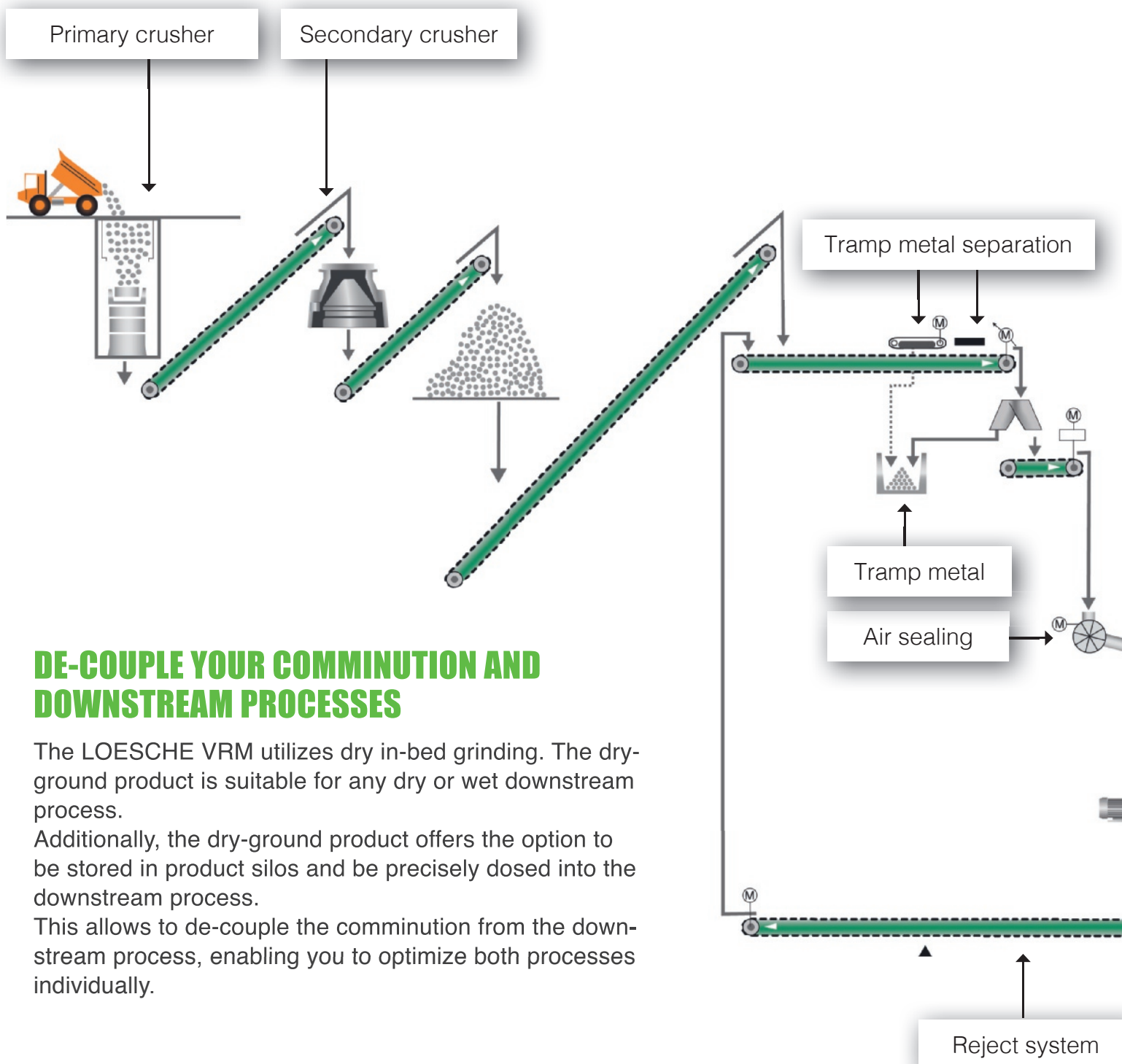


IMPROVED MINERAL LIBERATION



HIGH RECOVERY AND HENCE
HIGHER REVENUE

THE LOESCHE PROCESS MAKES THE DIFFERENCE



DE-COUPLE YOUR COMMINUTION AND DOWNSTREAM PROCESSES

The LOESCHE VRM utilizes dry in-bed grinding. The dry-ground product is suitable for any dry or wet downstream process.

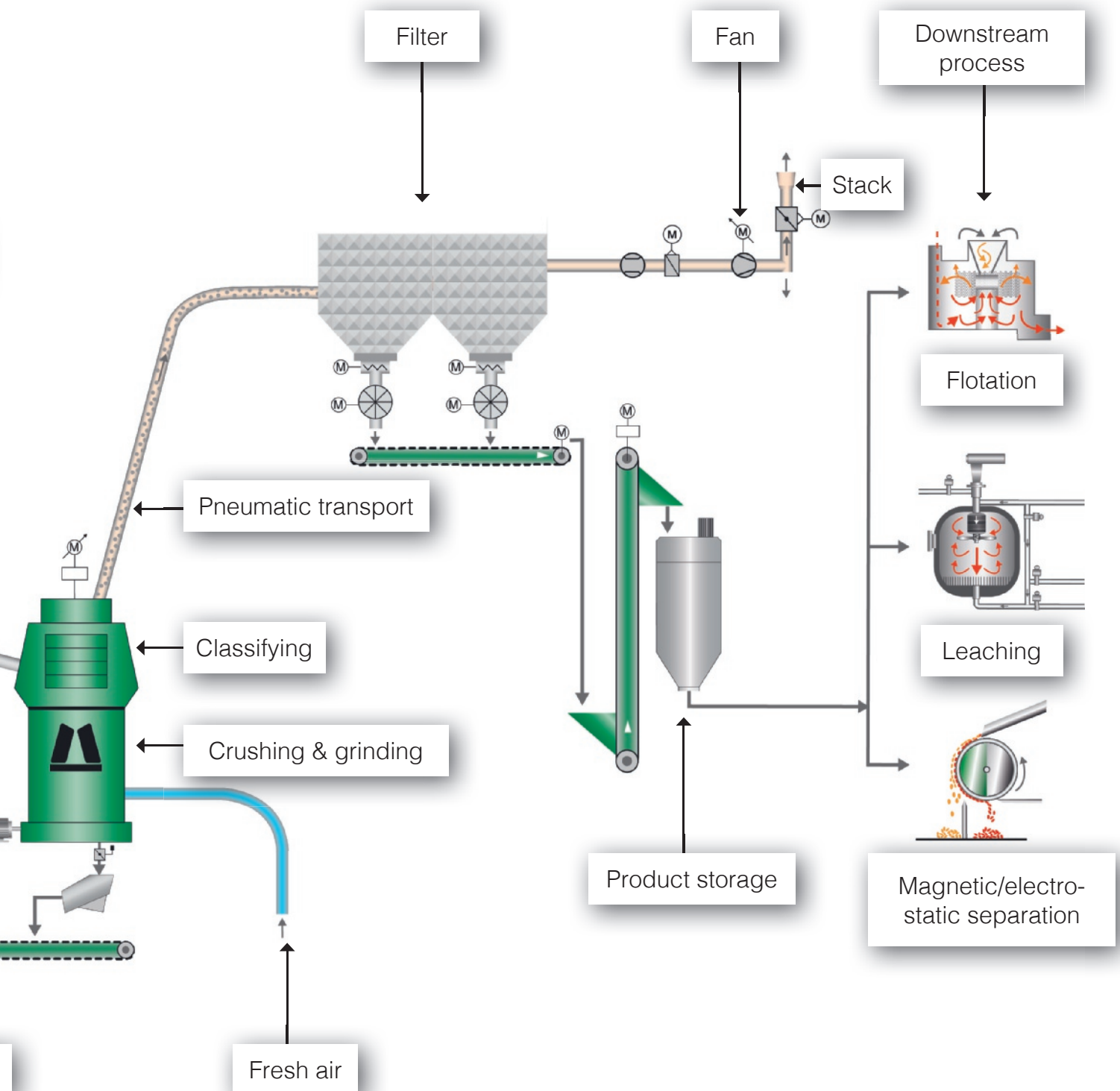
Additionally, the dry-ground product offers the option to be stored in product silos and be precisely dosed into the downstream process.

This allows to de-couple the comminution from the downstream process, enabling you to optimize both processes individually.

LOESCHE GRINDING-CLASSIFYING CIRCUIT

The LOESCHE process combines crushing, grinding, classifying and transporting.

Replacing all comminution aggregates after the secondary crusher the LOESCHE VRM can handle feed sizes up to 150 mm and provide finished ground products down to $P_{80}=20\text{ }\mu\text{m}$.

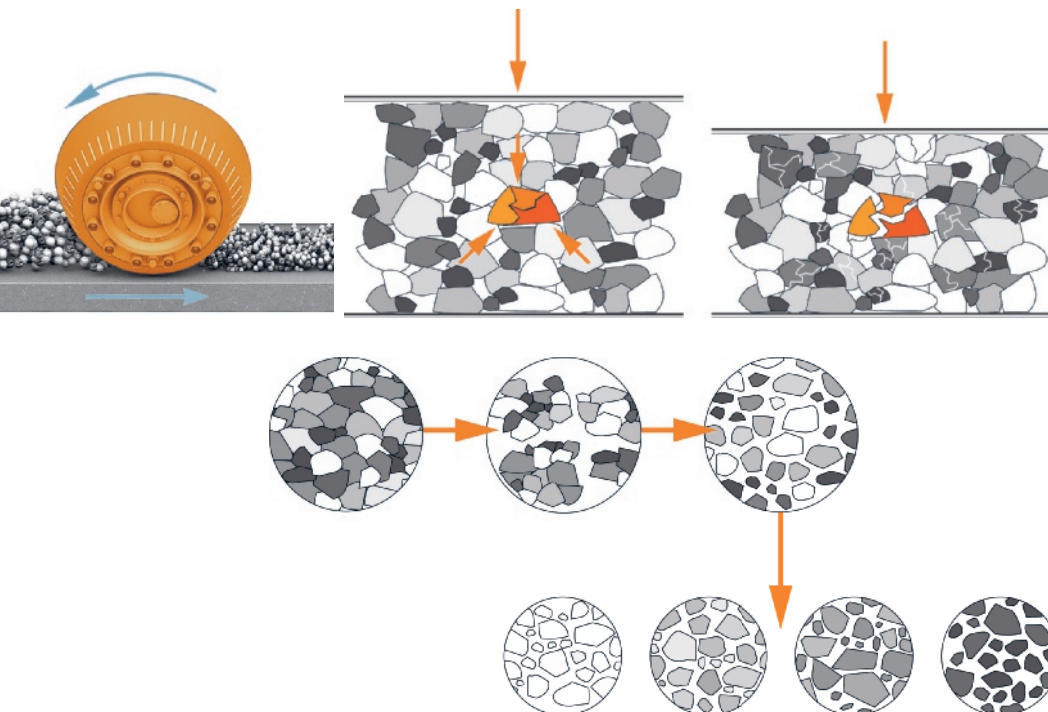


THE WORKING PRINCIPLE

Crushing, grinding, classifying and transporting in one machine

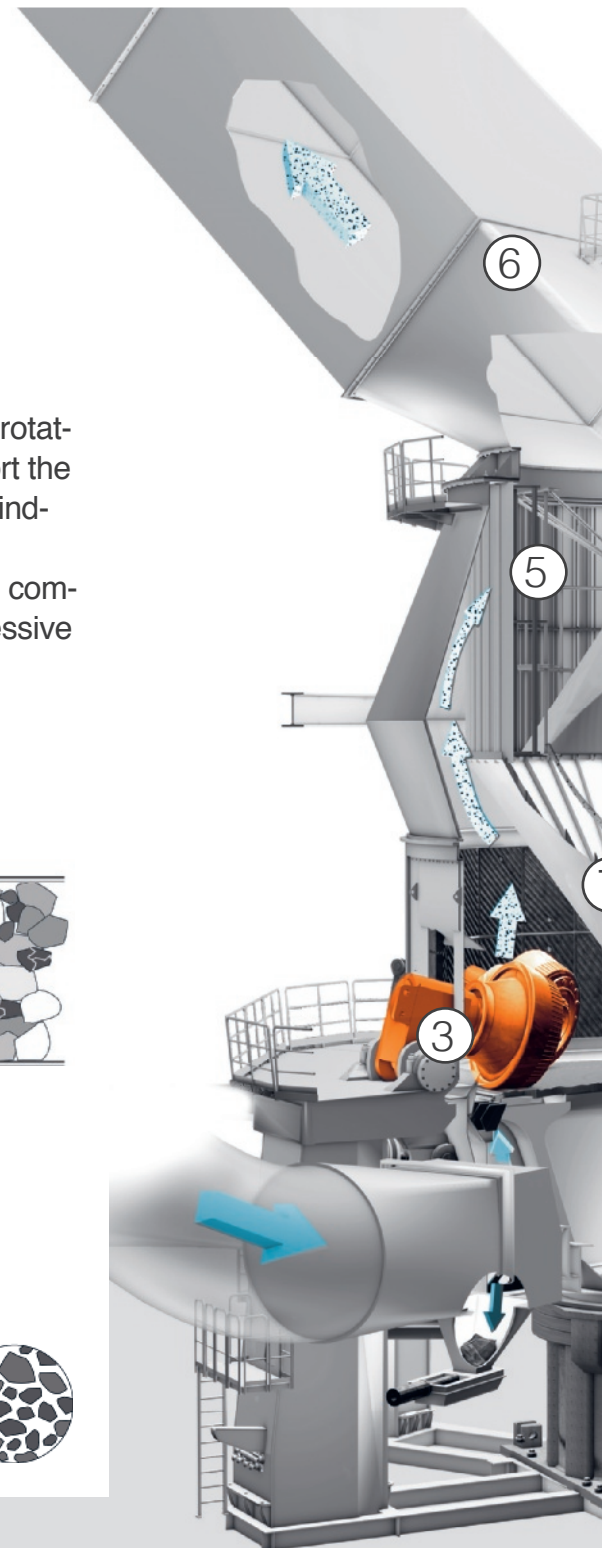
The ore is fed via an air sealing (1) to the centre of the rotating grinding table (2). Centrifugal forces evenly transport the ore outwards to the grinding zone between the fixed grinding rollers (3) and the grinding table.

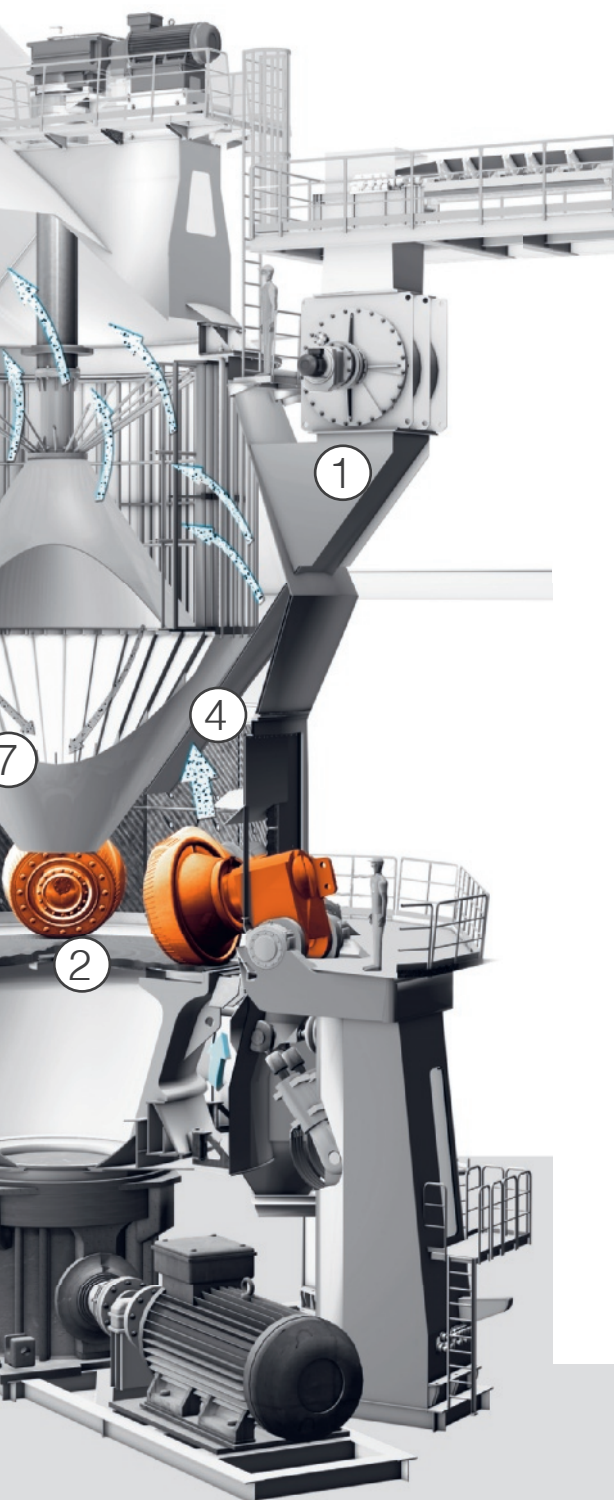
In the grinding zone the ore is crushed and ground in a compressed material bed through a combination of compressive and shear forces.



IN-BED GRINDING

The energy efficient in-bed grinding provides selective comminution and improved mineral liberation.





The ground ore is transported over the edge of the grinding table where the particles are pneumatically transported upwards (4) to a high efficiency dynamic classifier (5). Particles corresponding to the adjusted product particle size pass through the classifier rotor and are transported via the gas flow (6) to be separated in a product filter. Particles not yet completely ground are rejected by the rotor and guided back to the centre of the grinding table via the grit cone (7).

COMPACT DESIGN

The LOESCHE layout characterises through a compact design and hence a small plant footprint - ideal for brownfield, but also for greenfield projects.



DIRECT CLASSIFYING AVOIDS OVERGRINDING

GAME CHANGER

Fulfilling the tough requirements of the mining industry

UNMATCHED PROCESS FLEXIBILITY



Online controllable grinding parameters allow an unmatched process control of the grinding-classifying process and hence superior plant efficiency and product quality.



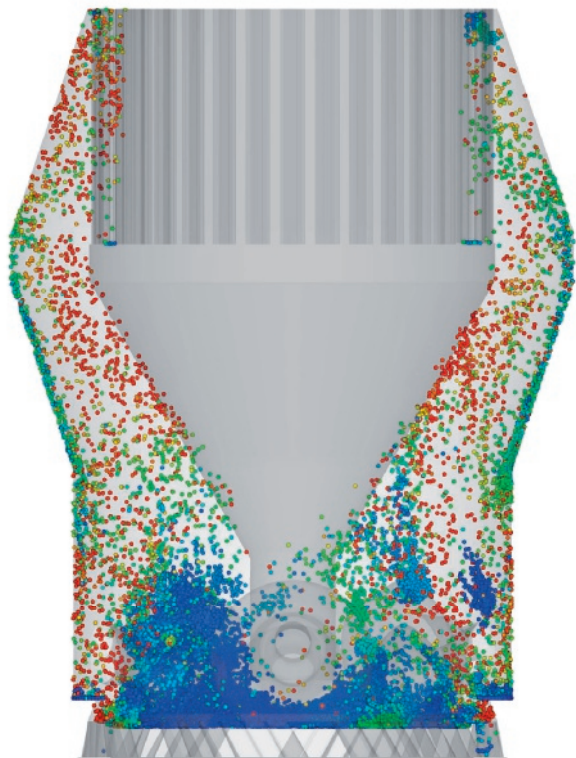
Process ramp up time below 10 minutes



Adjustable to changing feed characteristics within minutes



Suitable to cope with changing energy capacities like provided by renewables



2ND LEVEL EXPERT SYSTEM

- Automated plant operation by means of second level expert systems based on Artificial Neuronal Networks.
- Remote plant operation and supervision
- Early detection of maintenance demand

aixProM





EXCELLENT AVAILABILITY



Online control of all important process parameters



Field proven highly durable and wear resistant materials



Long lasting grinding elements



Innovative maintenance concepts

PROCESS DECOUPLING



Continuous downstream production during mill maintenance



PERFORMANCE GUARANTEED

More than a century of experience

More than 2,300 mills in operation providing more than 17,500 datasets of operational experience, coming directly from industrial applications.

More than 10,000 grinding tests conducted in our test facilities are the foundation of our knowledge.

These two fields combined with most advanced techniques provide an ever ongoing process of optimization.

LOESCHE TEST CENTER

Based in Neuss (Germany) our Test Center is the heart of our R&D efforts. Four fully automated pilot-scale grinding plants provide plenty of possibilities to optimize your project.





OGPMOBILE

Our fully mobile test unit can be installed at your site to do extensive test work. Next to providing all required data and product samples it is also best suited to prove the concept of vertical roller milling for your project.

10,000 grinding tests

+2,300 mills sold

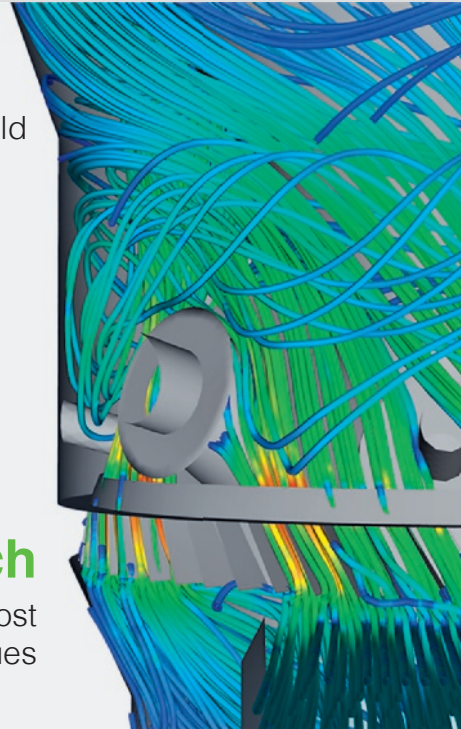
SCALE -UP

under continuous
cross-check

+17,500 datasets
in our data base

Research

using the most
advanced techniques



GRINDING TEST WORK

The LOESCHE grinding test provides precise information about throughput, specific power consumption and specific wear rate for your project. It also generates representative product samples to enable you to do metallurgical test work.

The LOESCHE grinding test is therefore best suited to fulfill the demands at any stage of your feasibility studies.

Grinding tests can be conducted either in our Test Center or at your site using our mobile test unit called **OGP**MOBILE.

SEND YOUR SAMPLE!

There is an easy way to find out how vertical roller milling could improve your process. Simply provide a sample for the LOESCHE grinding test.

Interested? Please get in contact with us using

futureofmining@loesche.de



LOESCHE – WORLDWIDE PRESENCE

Loesche is an export-oriented company, established in Berlin in 1906, which is up-to-date run by the owner. Today the company is internationally active with subsidiaries, representatives and agencies worldwide.



CLOSE TO YOU

Contact us to learn more about our solutions on the mining industry's future @ Loesche via futureofmining@loesche.de