

# Metso Vertimills<sup>®</sup>



Most energy  
efficient gravity  
induced mill





Metso is the  
global leader in  
comminution  
technology

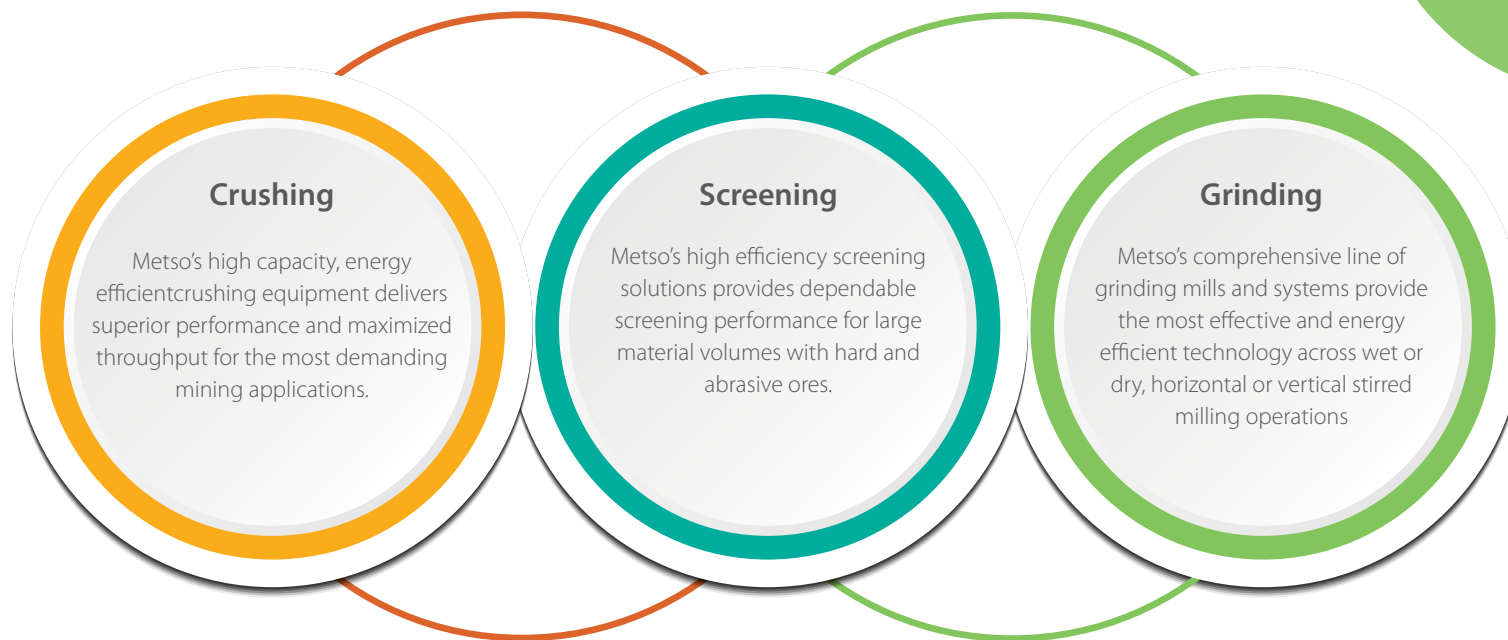
## Energy efficient technology

Minerals processing is changing. With diminishing ore grades and rising energy costs, ensuring that a plant has the lowest total cost of ownership is vital. Comminution of ore is one of world's most energy intensive stages and accounts for up to 40 percent of the total energy used in mineral processing. More sustainable technologies & practices are required to make these hard, variable and low-grade ore bodies viable. Metso has an extensive history of technological development and is recognized as the world leader in engineering and innovating comminution circuits that are not only energy efficient but are also lower in operating costs helping our customers achieve maximum production and consistent recovery.









# Advanced solutions for maximizing energy efficiency

Ensuring the accuracy and consistency of product size directly affects the profitability of your operation. Efficiently reducing ore size requires the optimum mix of world class equipment. As the leading supplier of crushing, screening and grinding equipment, Metso ensures that you have selected best technology, systems and solutions for your mining operations.



## A versatile and energy efficient solution

Metso Vertimill® is the industry benchmark in gravity induced milling technology. Globally recognised as efficient grinding machines, they bring substantial improvement in profitability of concentrators.

-  Up to **40%** higher energy efficiency
-  **95%** or greater uptime
-  **50%** less footprint vs ball mill (In same application)
-  Up to **50%** less media consumption
-  **< 2** weeks to install
-  **< 85** db noise



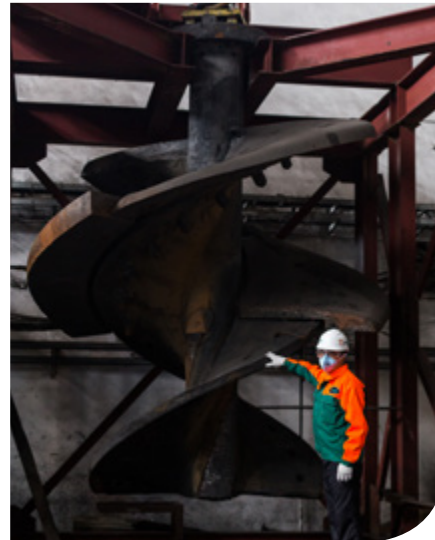
Metso Vertimills®

## Unlocking energy efficiency in fine wet grinding

VERTIMILL® is Metso's gravity-induced, vertical stirred mill. Its vertical configuration allows for large throughputs while maintaining a small footprint in your circuit. The VERTIMILL® can bring up to 40% savings in energy consumption in some cases, and helps in reaching excellent recovery rates by producing a sharper particle distribution. In a nutshell, Metso Vertimills® offer the most optimum equipment solution for the circuit.

**The Vertimill® is capable of handling feed sizes up to 6 mm and grinding to a product size of less than 20 microns, and has standard mill sizes ranging from 15HP (11kW) to 4500HP (3352 kW).**

Mechanically, the Vertimill® is a very simple machine with an agitating screw suspended into the grinding chamber, supported by spherical roller bearings and driven by a fixed speed motor through a gearbox.



Over four decades of  
successful Vertimill®  
applications

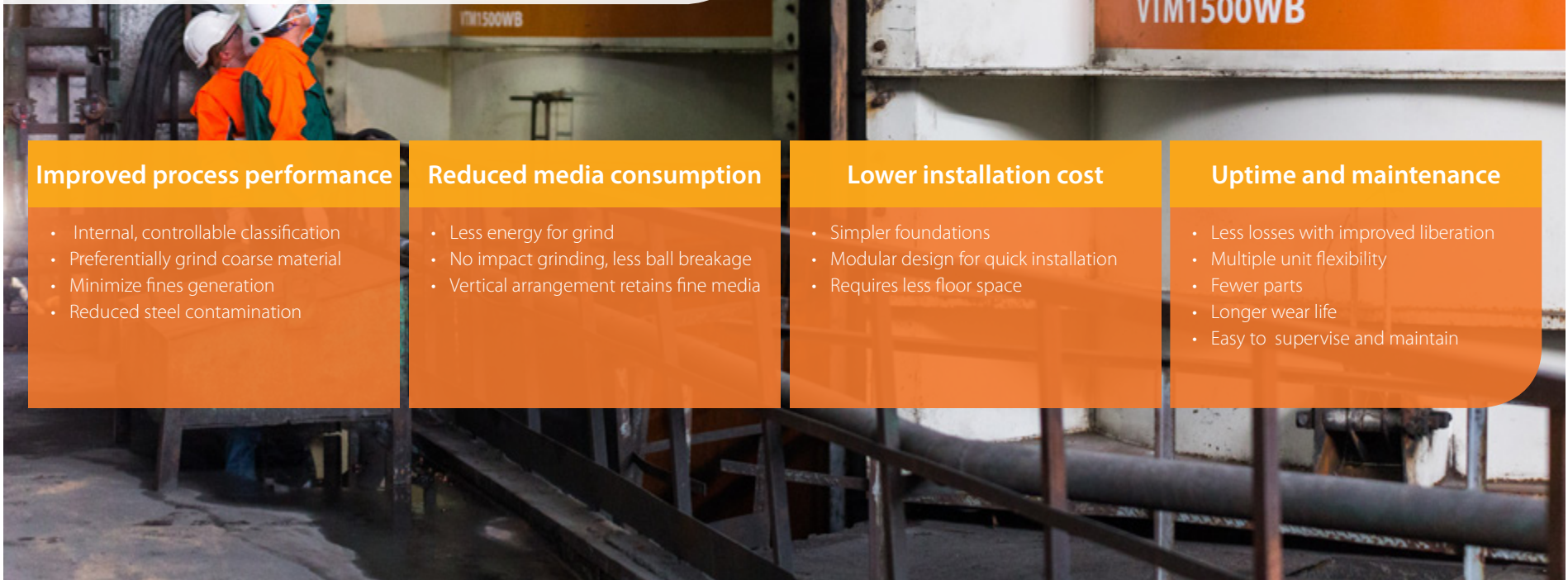
### The Vertimill® is suitable for:

- Secondary grinding
- Tertiary grinding
- Regrinding applications
- Fine grinding
- Lime slaking

# Why choose Metso Vertimills®?

## Superior efficiency with field proven performance

With overall efficiency and proven performance, Metso Vertimills® offer the lowest total cost of ownership in many applications.



### Improved process performance

- Internal, controllable classification
- Preferentially grind coarse material
- Minimize fines generation
- Reduced steel contamination

### Reduced media consumption

- Less energy for grind
- No impact grinding, less ball breakage
- Vertical arrangement retains fine media

### Lower installation cost

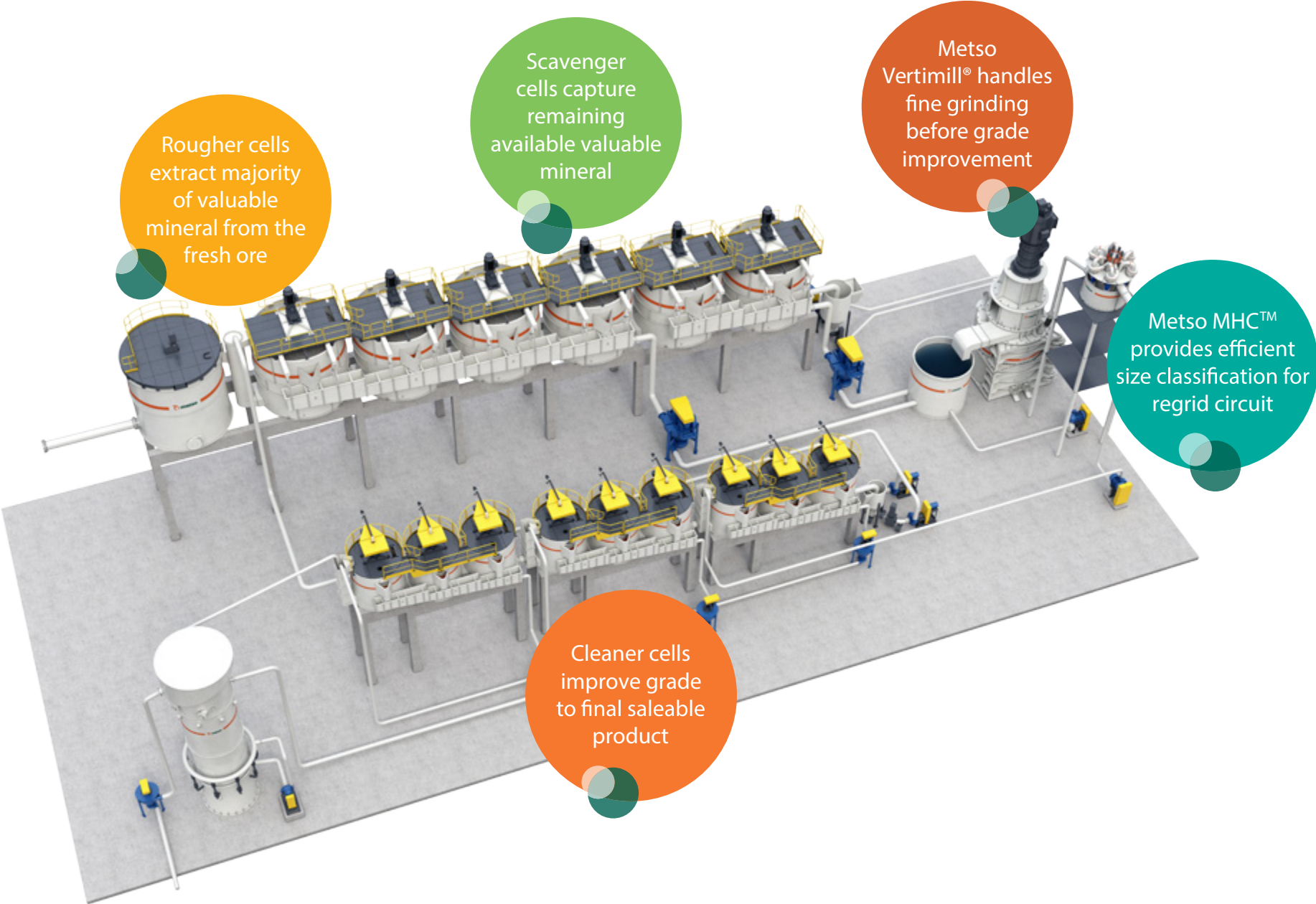
- Simpler foundations
- Modular design for quick installation
- Requires less floor space

### Uptime and maintenance

- Less losses with improved liberation
- Multiple unit flexibility
- Fewer parts
- Longer wear life
- Easy to supervise and maintain



# Unified regrind solutions



## Delivering results

### Stable growth in steel pellets quality at Poltava Mining

#### Challenge:

Improve quality of steel pellets by increase the iron content in processing of low-grade ores with space constraints

#### Solution:

Metso provided a new concentration line, which included Metso Vertimills® for all flotation cells

#### Result:

Bring fineness of grinding up to 90% ground materials and are minus 33 microns. Overall, this improvement helped improve pellet quality from 62% to 67%.

#### Read more:

 <https://www.metso.com/showroom/mining/poltava-mining/>



Improve pellet quality  
from  
**62% to 67%**

**10 point**  
reduction in grain  
size



## Delivering results

# A switch from ball mills to Vertimill® boosts Miaogou Iron Mine's transformation

### Challenge:

The mine's original grinding circuit consisted of ball mills exclusively. Due to downturn in the iron & steel industry, Miaogou's concentration costs were exceeding the price of iron concentrate, putting significant pressure on company's operations. The original tertiary grinding fineness was -325 mesh with 71-73% passing. Iron concentrate grade was 65% and the average recovery rate 87%

### Solution:

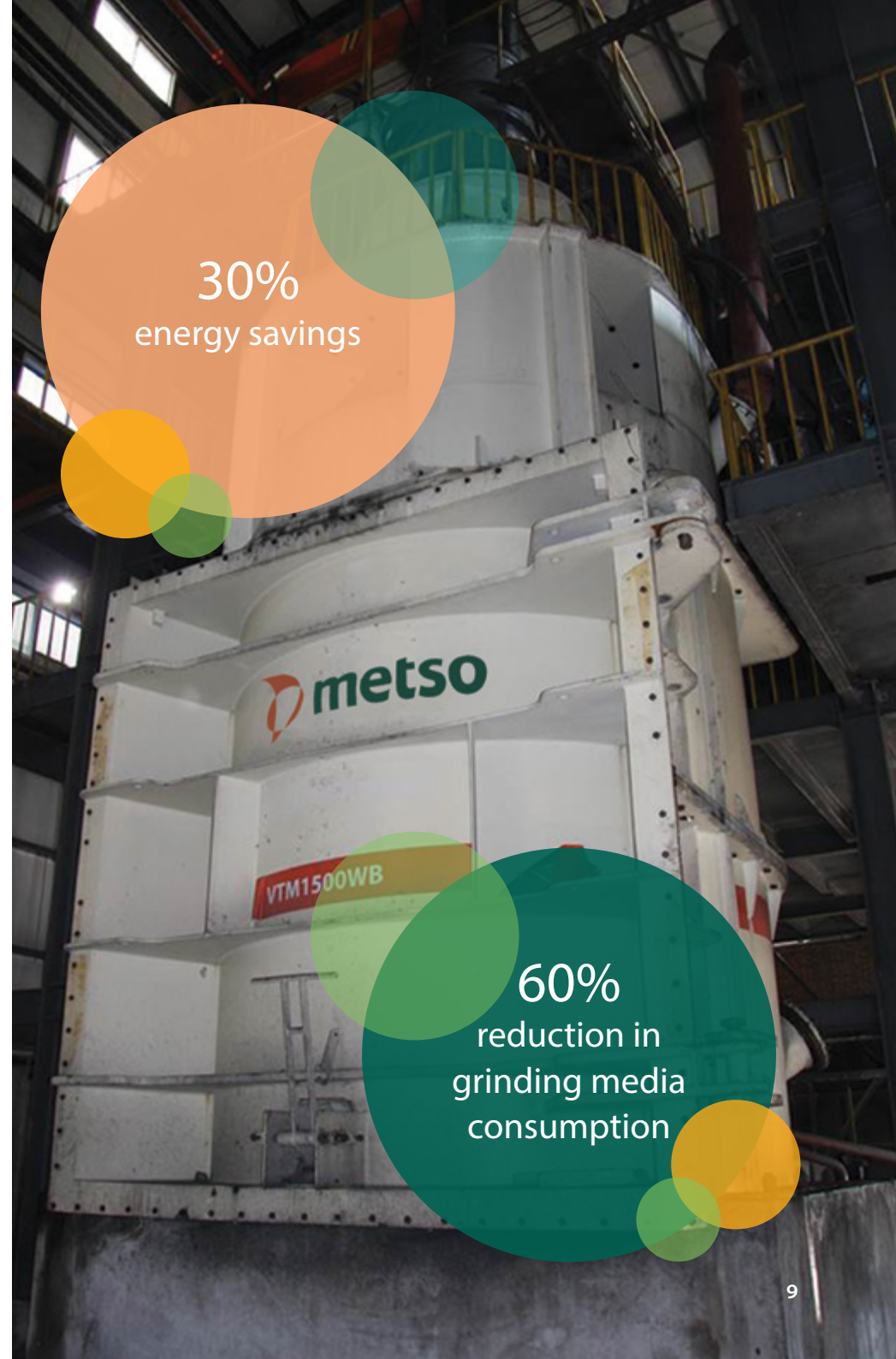
Introduction of Metso's Vertimill® VTM1500 vertical grinding mill at Miaogou Iron Mine to achieve the goal of the technological transformation and smoothly riding out the current market's difficulties

### Result:

After replacing the original tertiary ball mills with Vertimill® VTM1500, the grinding fineness increased to 88-90% passing -325 mesh, the iron concentrate grade to 66%, with 89% average recovery. The silica content also decreased by 1%

### Read more:

 [metso.com/showroom/mining/a-switch-from-ball-mills-to-vertimill-boosts-miaogou-iron-mines-transformation/](https://www.metso.com/showroom/mining/a-switch-from-ball-mills-to-vertimill-boosts-miaogou-iron-mines-transformation/)



30%  
energy savings

60%  
reduction in  
grinding media  
consumption

# Services built for performance

## Maximize efficiency, availability and longevity

### Spare and wear parts

Crafted to the same strict specifications and standards as our equipment, our genuine parts ensure complete compatibility for seamless operation. Our global distribution logistics network ensure that Metso OEM spare and wear parts are available when you need them.

### Equipment upgrades and retrofits

Improve your equipment's productivity without the large capital investment. Our upgrades are offered as easy-to-implement packages or custom-engineered for your specific requirements, with the aim of enhancing safety, operating and maintenance features.

### Maintenance and repairs

Proper maintenance is key to running your equipment effectively. Metso offers end-to-end service ranging from inspection and diagnostics, equipment and part repairs, shutdown solutions and planning, as well as emergency services.

### Process optimization and controls

Metso process experts help in solving complex operational issues using analytical techniques, laboratory testing, and advanced control systems. Whether you need to optimize a piece of equipment, a circuit, or your entire plant, we have the tools and technology to help you make it happen.

### Life cycle services and performance solutions

Metso's pre-packaged solutions are designed to assist you in meeting your business goals, from start-up to shutdown to end-of-life. We can support you on a specific activity or over a larger scope, combining elements from our large portfolio of services with unique commercial models.



Through our knowledge and experience, we work with our customers to create solutions that enable them to attain their objectives. We call this **The Metso Way**, which focuses on creating value to our customers.

## The Metso Way

### Knowledge -



We have deep knowledge about our customers' business environment, processes and challenges

### People -



Our committed and highly competent people make the difference to our customers

### Solutions -



We create the technology and services required to meet our customer needs



Metso Inc.,  
[www.metso.com/vtm](http://www.metso.com/vtm)