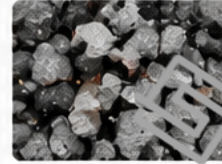


Manganese Ore Crushing Flow

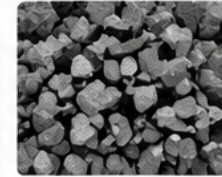
1. ROM
Manganese Ore



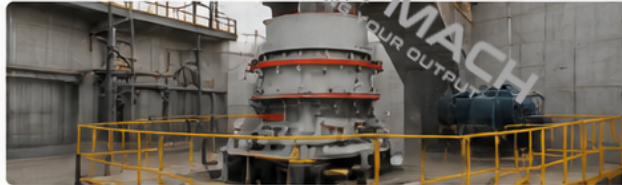
2. Vibrating /
Grizzly Feeder



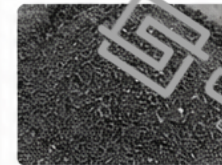
3. Primary
Jaw Crusher



4. Secondary
Cone Crusher



5. Vibrating
Screen



Overflow
Return

Qualified Undersize
To Beneficiation Preparation



Purpose

Reduce ROM size for
beneficiation preparation.

Key Control Factors



Feed Size

ROM size, top size
distribution and
rock competency
affect crushing duty.



Crusher Selection

Choose appropriate
jaw and cone crushers
based on ore
characteristics.



Screen Classification

Screen efficiency
controls product size
and circuit stability.



Circulating Load

Proper circulating load
improves crusher
performance and
reduces excessive wear.



EQUIPMENT DUTY



Primary size reduction of ROM manganese ore to suitable size for secondary crushing.

REFERENCE FEED EXAMPLES



PE600×900
Feed reference

500 mm



PE750×1060
Feed reference

630 mm



PE900×1200
Feed reference

750 mm

CRUSHING STAGE	PRIMARY
Purpose	Initial size reduction
Typical Feed	Large ROM rock
Typical Product	For secondary crushing



ENGINEERING NOTE

Crusher selection depends on ROM size, rock competency and feed distribution.
Ensure even feed distribution and proper tramp iron removal for stable jaw crusher performance.

CONE CRUSHER



- Secondary size reduction
- Reduces material to sizing screen
- Proper chamber selection improves productivity and product shape

VIBRATING SCREEN



- Classifies crushed material into undersize and oversize
- Multiple deck configuration for accurate separation
- Screening controls circuit efficiency and final product size

CLOSED CIRCUIT EXPLANATION

The screen separates material. Oversize is returned to the cone crusher for further reduction. This closed circuit ensures target size control.



Jaw Crusher

Primary crushing reduces ROM size



Cone Crusher

Secondary crushing reduces material further



Screen

Separates material by size



Undersize (Qualified)

To next stage
(e.g., beneficiation preparation)

Oversize (Return)

Returned to cone crusher for further reduction



TECHNICAL NOTE: Screening controls the final product size and circulating load. Proper screen sizing, deck configuration, and media selection are critical for stable crushing circuit performance.

CRUSHED MANGANESE ORE – TYPICAL SIZE RANGES

COARSE

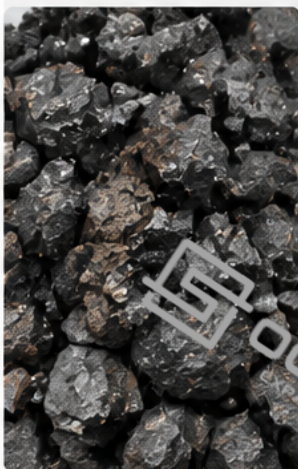
100–200 mm



Well liberated,
suitable for
gravity recovery

MEDIUM

20–100 mm



Partially liberated,
suitable for gravity
or magnetic separation

FINE

5–20 mm



Poorer liberation,
requires grinding for
further separation

ULTRA FINE

–5 mm



Intergrown minerals,
requires grinding and
beneficiation

Coarser

Particle Size Decreasing

Finer

NEXT PROCESSING STAGE

COARSE LIBERATED ORE

Well liberated manganese minerals
at coarser sizes

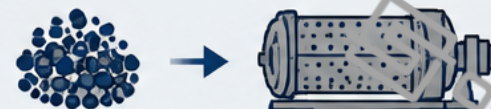


WASHING / GRAVITY SEPARATION

Recover dense manganese minerals
by gravity difference

FINE INTERGROWN ORE

Intergrown minerals at fine sizes
require liberation



GRINDING / FURTHER BENEFICIATION

Liberate minerals for magnetic separation,
flotation or combined processes

TECHNICAL NOTE

The final crushing size is not determined by aggregate specification.

It is controlled by the liberation requirement of manganese minerals and the needs of the selected beneficiation route.

Key Considerations

- Mineral liberation degree
- Ore mineralogy and gangue association
- Downstream beneficiation method