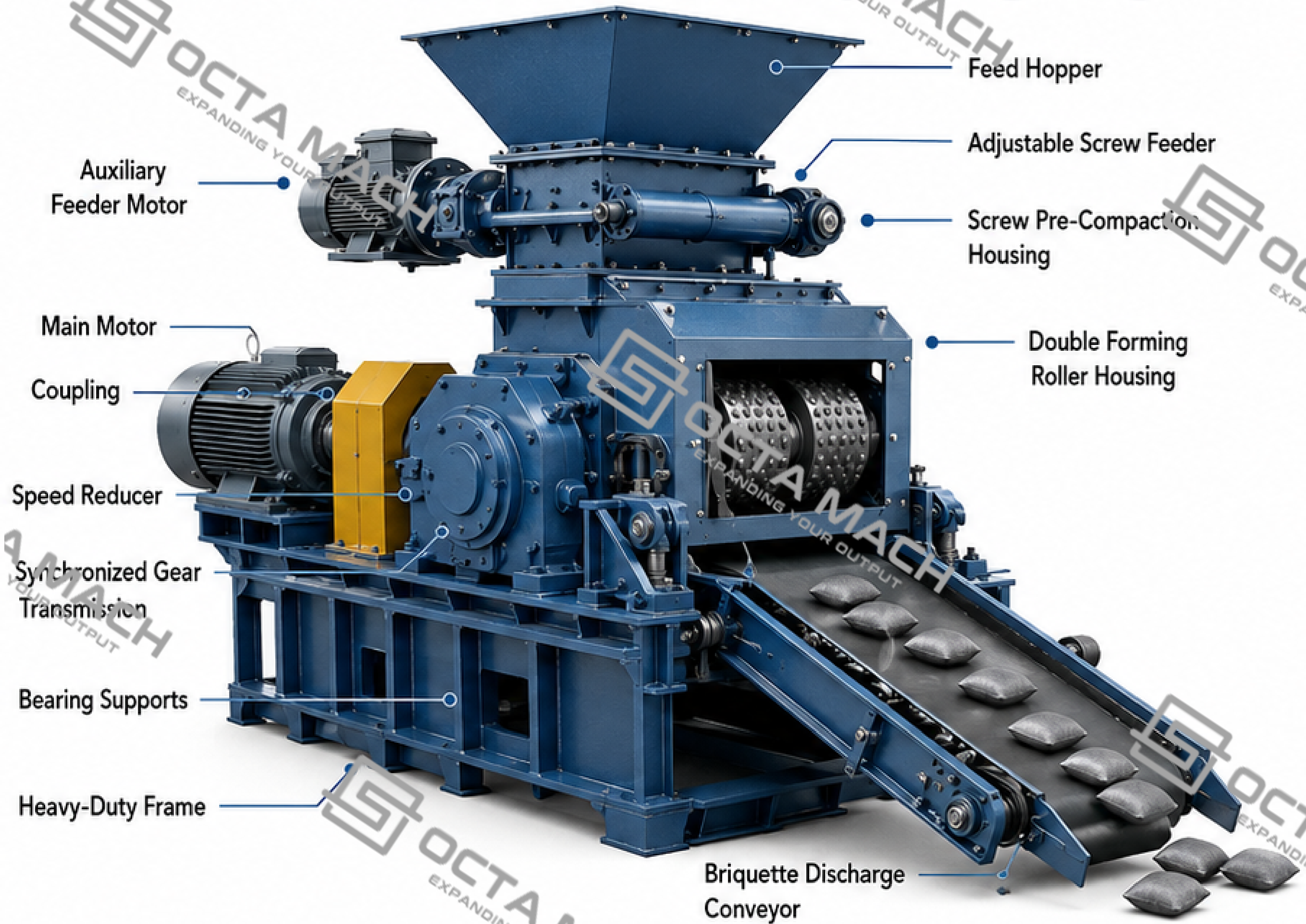
HY High Pressure Dry Powder Briquette Machine
Technical Parameters and Selection Guide

Product Overview and Confirmed Operating Range



PRODUCT SERIES	HY0.5–HY10
DESIGN CAPACITY	0.5–10 t/h
ROLLER DIAMETER	Φ299–Φ858 mm
ROLLER WIDTH	180–300 mm
MAIN MOTOR POWER	18.5–110 kW
AUXILIARY MOTOR POWER	11–22 kW
FEEDING SYSTEM	Adjustable screw feeding and pre-compaction
PRESSING METHOD	Synchronized counter-rotating pocketed rollers
TYPICAL FEED	Prepared mineral, metallurgical, refractory and chemical powders
PRODUCT FORM	Roller-pocket-shaped briquettes

PRODUCT DEFINITION

The HY high pressure dry powder briquette machine uses adjustable screw pre-compaction and synchronized counter-rotating pocketed rollers to form prepared industrial powders without adding process water during pressing.

Published capacity is used for preliminary model comparison. Actual output depends on feed bulk density, particle-size distribution, moisture stability, compressibility, feeding stability, roller-pocket design and recycle fines.

Confirmed HY Series Technical Parameters

Roller Dimensions and Design Capacity

Model	Roller Diameter	Roller Width	Design Capacity
HY0.5	Φ299 mm	180 mm	0.5 t/h
HY1.0	Φ367 mm	183 mm	1 t/h
HY1.5	Φ368 mm	183 mm	1.5 t/h
HY2.0	Φ399 mm	232 mm	2 t/h
HY3.0	Φ522 mm	196 mm	3 t/h
HY5.0	Φ700 mm	210 mm	5 t/h
HY6.0	Φ738 mm	225 mm	6 t/h
HY8.0	Φ758 mm	225 mm	8 t/h
HY10	Φ858 mm	300 mm	10 t/h

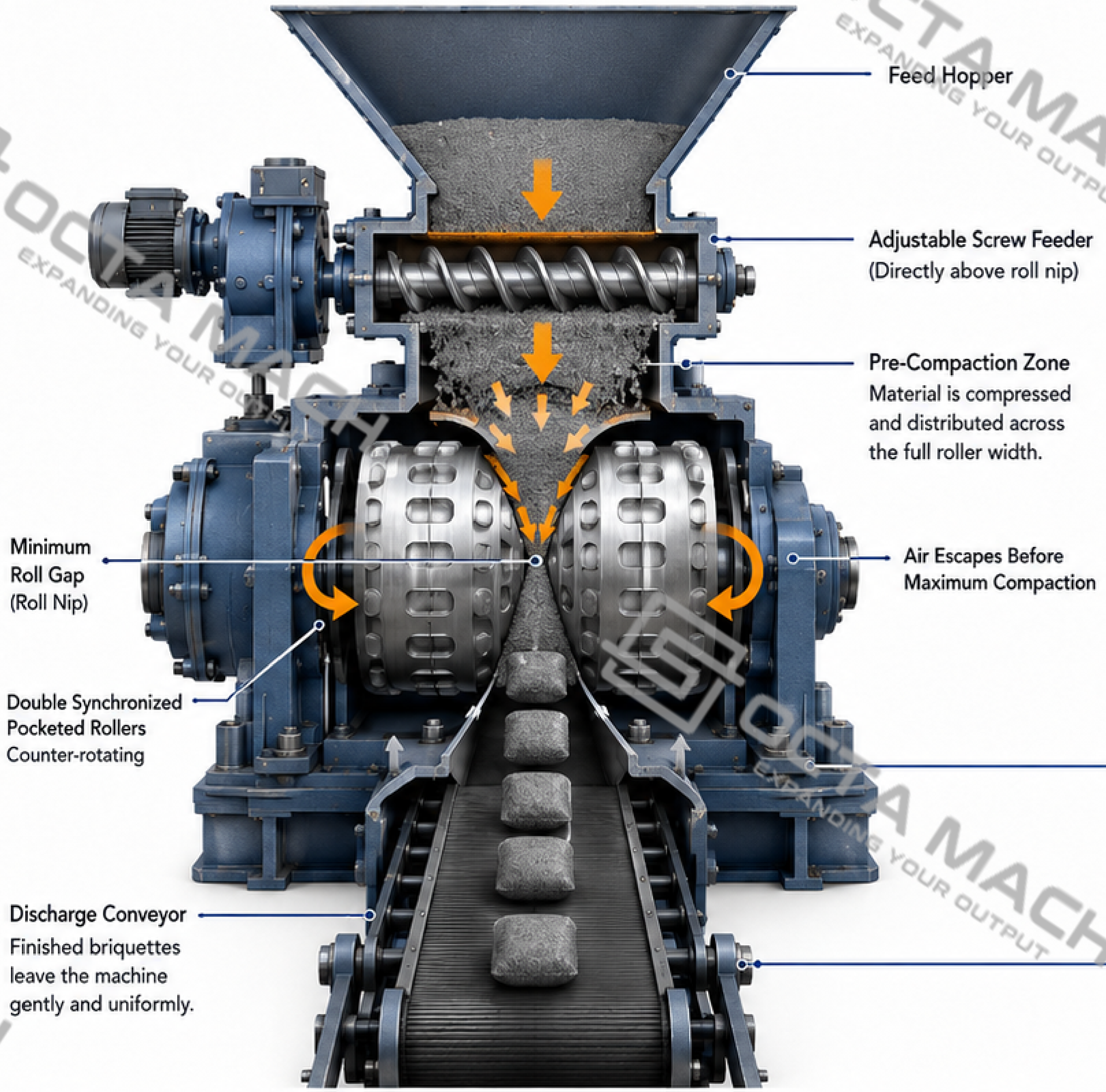
Main and Auxiliary Drive Configuration

Model	Main Motor Model	Main Motor Power	Auxiliary Motor Model	Auxiliary Motor Power
HY0.5	Y180M-4	18.5 kW	YCT225-4A	11 kW
HY1.0	YCT315-4A	37 kW	YCT225-4A	11 kW
HY1.5	Y250M-6	37 kW	YCT225-4A	11 kW
HY2.0	BYQ7315-4-13	45 kW	YCT225-4A	15 kW
HY3.0	Y280S-6	55 kW	YCT225-4B	15 kW
HY5.0	Y315M-6	90 kW	YCT250-4A	18.5 kW
HY6.0	Y280S-4	90 kW	YCT250-4A	18.5 kW
HY8.0	Y315S-4	110 kW	YCT250-4A	18.5 kW
HY10	Y315M2-6	110 kW	YCT250-4B	22 kW

TECHNICAL NOTE

Catalogue values are used for preliminary model comparison. Final motor configuration, roller-pocket design, feed-screw speed, installation dimensions and electrical requirements must be confirmed in the project-specific technical agreement.

Working Principle and Roll-Nip Formation



1 DRY POWDER FEEDING

Prepared screened powder enters the feed hopper.

Oversize particles and tramp metal must be removed upstream.

2 SCREW PRE-COMPACTION

An adjustable screw meters and pushes the powder toward the forming rollers.

3 PROGRESSIVE COMPRESSION

Two synchronized pocketed rollers rotate in opposite directions.

Available volume gradually decreases toward the roll nip.

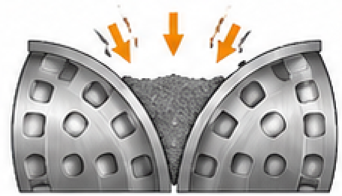
4 BRIQUETTE FORMATION

Matched upper and lower pockets align near the minimum roller gap.

5 BRIQUETTE RELEASE

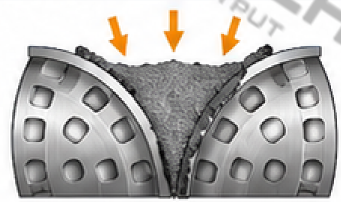
The pockets separate and newly formed briquettes fall gently onto the discharge conveyor.

UNDERFEEDING



- Incomplete pocket filling
- Low or uneven briquette density

OVERFEEDING



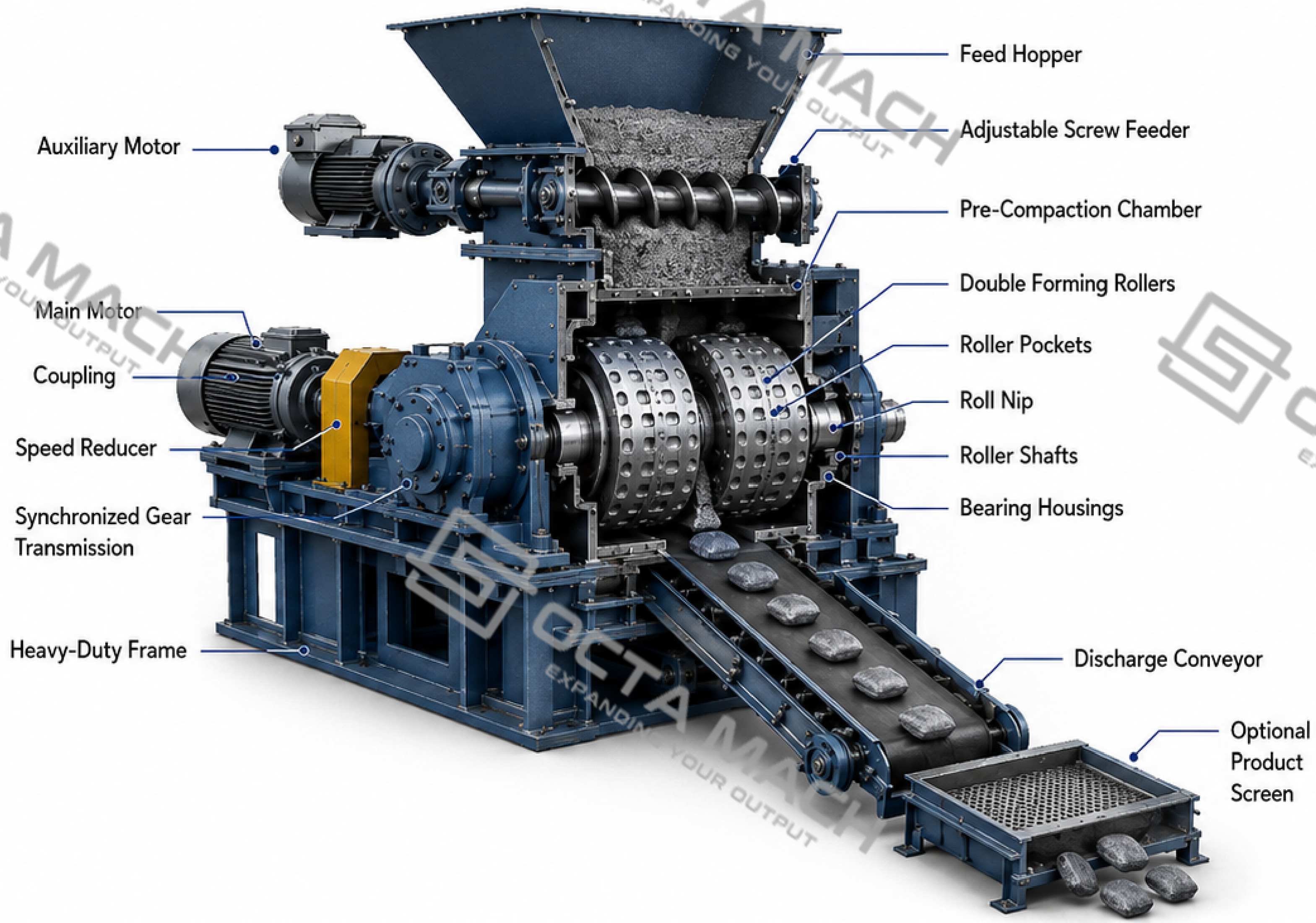
- Excess edge material
- Unstable machine loading
- Irregular release

TECHNICAL NOTE

Dry powder does not mean zero moisture. Residual moisture may remain, but it must be stable and suitable for the material.

Feed rate must be matched to roller speed and available pocket volume.

Main Machine Structure and Drive Synchronization



FEEDING SYSTEM

Meters and pre-compacts powder before the roll nip.

FORMING ROLLERS

Matched pockets determine forming volume and briquette geometry.

MAIN DRIVE

Supplies torque to rotate the forming rollers under load.

SYNCHRONIZATION

Maintains accurate alignment between opposing roller pockets.

STRUCTURAL SUPPORT

The frame and bearing housings maintain roll-gap stability and shaft alignment.

Main Motor → Coupling → Speed Reducer → Synchronized Gear Transmission → Double Forming Rollers

Auxiliary Motor → Adjustable Screw Feeder

Changing roller speed without matching screw-feed rate can produce underfilled pockets or excessive material accumulation.

Feed Suitability and Binder Requirements

1 PREPARED FEED GROUPS

Lime and Magnesium Materials

Quicklime powder and magnesium oxide powder

Metal Concentrates

Copper concentrate and lead-zinc concentrate

Ferroalloy and Ore Fines

Chrome ore powder and prepared bauxite fines

Non-Ferrous Powders

Selected mineral or metallurgical powders

Refractory Materials

Prepared refractory and oxide powders

Ceramic Materials

Uniform ceramic powder blends

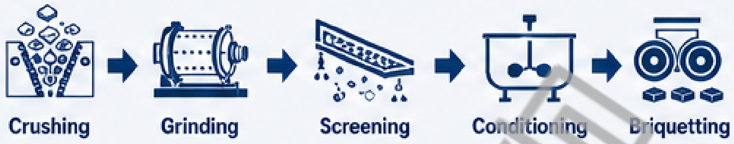
2 FEED PREPARATION BOUNDARY

SUITABLE AS PREPARED FEED

- Screened mineral powder
- Ore concentrate
- Metallurgical fines
- Refractory powder
- Ceramic powder blends
- Controlled mixtures of compatible powders

NOT SUITABLE FOR DIRECT FEED

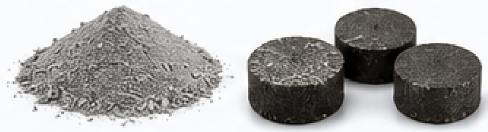
- Untreated ore lumps
- Large rocks
- Wet sludge with unstable moisture
- Tramp metal
- Unscreened oversize particles
- Highly fibrous biomass



Proper preparation ensures consistent feeding, effective compaction and stable briquette quality.

3 BINDER DECISION

Representative Material Test



Sufficient Bonding Under Pressure?

YES → **Binder-Free Briquetting**

- Stable material composition
- Controlled particle-size distribution
- Stable residual moisture
- Confirmed compressibility
- Acceptable briquette handling strength

NO → **Binder-Assisted Briquetting**

1. Select a Compatible Binder
2. Mix Uniformly
3. Press Test Briquettes
4. Verify Handling Strength and Downstream Chemistry

A binder that improves green strength may still be unacceptable if it introduces unwanted ash, sulphur, alkalis, phosphorus or other process contaminants.

Briquette Quality Controls and Product Shapes

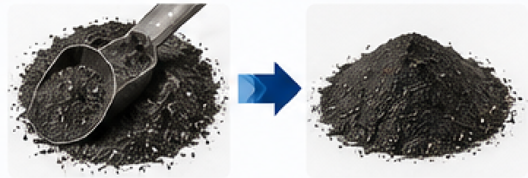
1 PARTICLE-SIZE DISTRIBUTION

Oversize particles can interfere with pocket filling.

Excessively fine cohesive powder may trap air or feed unevenly.

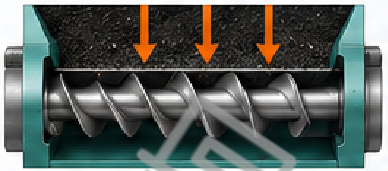
2 RESIDUAL MOISTURE STABILITY

Moisture variation changes flowability and compaction response.



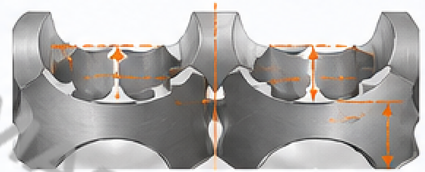
3 SCREW-FEED UNIFORMITY

Material must be distributed consistently across the roller width.



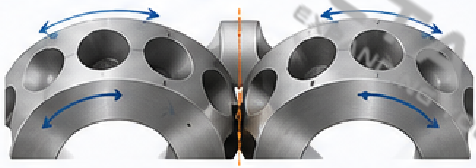
4 ROLLER-POCKET GEOMETRY

Pocket volume, depth, edge angle and release profile influence briquette formation.



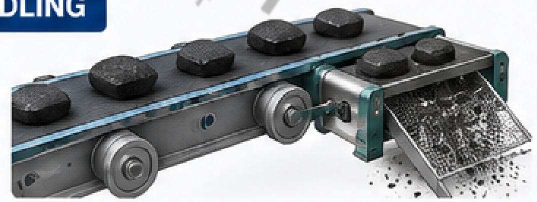
5 ROLLER SYNCHRONIZATION

Opposing pockets must meet acurately at the roll nip.



6 PRODUCT HANDLING

Fresh briquettes require controlled conveyor transfer and suitable screening intensity.



AVAILABLE BRIQUETTE SHAPES (DETERMINED BY ROLLER-POCKET DESIGN)

PILLOW

OVAL

ROUND

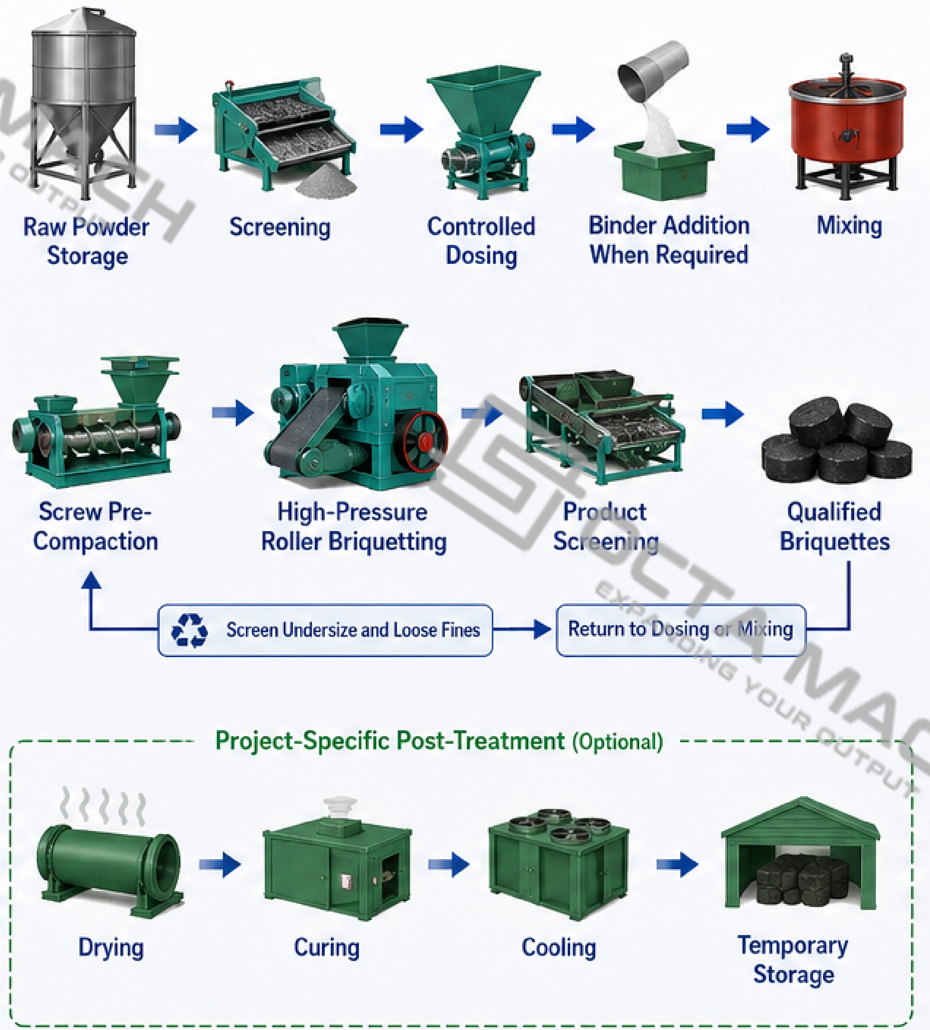
RECTANGULAR

Briquette geometry is determined by the forming-roller design and must be selected for material compressibility, release behaviour, handling strength and downstream use.

Depending on the material recipe, freshly pressed briquettes may proceed directly to screening or may require curing, drying, cooling or temporary storage.

Integrated Process, Selection and Inspection Checklist

1 COMPLETE DRY POWDER BRIQUETTING PROCESS



2 MODEL AND PROCESS SELECTION INPUTS

- ☑ Material Type and Chemistry
- ☑ Particle-Size Distribution
- ☑ Bulk Density
- ☑ Residual Moisture Stability
- ☑ Powder Compressibility
- ☑ Required Capacity
- ☑ Required Briquette Shape
- ☑ Required Briquette Dimensions
- ☑ Green Handling Strength
- ☑ Binder Restrictions
- ☑ Downstream Furnace or Process
- ☑ Recycle-Fines Requirement
- ☑ Site Voltage and Frequency
- ☑ Upstream Mixing Interface
- ☑ Downstream Screening Interface

Feed Properties + Required Capacity + Briquette Requirement + Downstream Process =

Project-Specific Machine and Roller Configuration

3 PRE-SHIPMENT AND DOCUMENT CHECKLIST

- ☑ Feeder Assembly Condition
- ☑ Forming-Roller Alignment
- ☑ Roller-Pocket Matching
- ☑ Bearing Installation
- ☑ Coupling Alignment
- ☑ Reducer and Drive Assembly
- ☑ Synchronized Rotation
- ☑ No-Load Operation
- ☑ Installation Drawings
- ☑ Equipment List
- ☑ Operating Documents
- ☑ Packing Records
- ☑ Confirmed Technical Agreement

⚠ Final feed-screw speed, roller-pocket geometry, electrical configuration, installation dimensions and system interfaces are project-specific and must be confirmed before production.