Cone Crusher Type Selection and Technical Parameter Guide

A practical reference for selecting cone crusher type, cavity configuration, capacity range and application match in aggregate and mineral-processing circuits.

Scope	Selection Principle	Core Variables
Secondary, tertiary and fine crushing after primary reduction	Crushing stage -> material -> feed size -> output size -> cavity -> crusher type -> screen circuit	Feed gradation, CSS, cavity profile, liner condition, screening efficiency

1. Cone Crusher Type Selection Logic

Cone crusher selection should start from the complete crushing circuit, not from a single rated capacity. The selected machine must match the upstream jaw crusher output, the material behavior and the downstream screening requirement.

1 Crushing Stage

Secondary / tertiary / fine crushing duty

2 Material Hardness

Granite, basalt, ore, limestone, river pebble

3 Feed Size

Actual top size and feed gradation from previous stage

4 Required Output

Target product size, CSS and screening demand

5 Cavity Type

Coarse, medium, fine or extra fine chamber

6 Crusher Type

HP multi-cylinder, CS/CH single-cylinder, spring or mobile

7 Screening Circuit

Closed circuit, recirculation load and finished product removal

Circuit position	Cone crushers normally work after primary jaw crushing, where the feed has already been reduced to a controlled size.
Capacity drivers	Feed size, CSS, cavity type, liner wear and screen efficiency all change actual production capacity.
Type boundary	Different cone crusher types are not simple replacements; each one serves a different automation, capacity and maintenance profile.

2. Three Cone Crusher Types Comparison

The three cone crusher types in this guide should be compared by control system, crushing duty and operating condition. The correct selection depends on whether the project prioritizes high capacity and automation, compact hydraulic control, or conventional mechanical reliability.

Cone Crusher Type	Main Control System	Best-Fit Application
HP Series Multi Cylinder Hydraulic Cone Crusher	Multi-cylinder hydraulic adjustment and protection	High-capacity hard rock, aggregate and mining crushing
CS/CH Single Cylinder Hydraulic Cone Crusher	Single-cylinder hydraulic adjustment and cavity clearing	Medium and fine crushing with compact hydraulic control
High Efficient Spring Cone Crusher	Spring protection and mechanical adjustment	Conventional stone crushing with stable feed condition

HP Series Multi Cylinder Hydraulic Cone Crusher

Best for high-load hard rock lines requiring stable output size, high automation and continuous operation.

CS/CH Single Cylinder Hydraulic Cone Crusher

Best for medium and fine crushing where hydraulic adjustment, compact structure and easier maintenance are required.

High Efficient Spring Cone Crusher

Best for stable-feed stone crushing lines that require reliable mechanical crushing with lower automation demand.

Selection boundary summary

Capacity and automation priority	HP Series Multi Cylinder Hydraulic Cone Crusher is preferred for hard rock, high capacity and stable product-size control.
Compact hydraulic control	CS/CH Single Cylinder Hydraulic Cone Crusher is suitable where hydraulic adjustment and cavity clearing are needed in a simpler hydraulic structure.
Conventional crushing duty	High Efficient Spring Cone Crusher is suitable for steady feed conditions, standard aggregate production and lower automation requirements.

3. Technical Parameter Review

This page summarizes the typical model range and parameter focus for quick pre-selection. The detailed model table should still be checked for final sizing because cavity type, CSS, feed gradation and liner condition can change actual capacity.

Crusher Type	Model Range	Feed / Inlet Range	Outlet / Discharge Range	Capacity / Power Focus
HP Series Multi Cylinder Hydraulic Cone Crusher	HP100-HP800	Open-side feeding size 33-450 mm	Min outlet size 6-38 mm	45-1200 t/h, 90-630 kW
CS/CH Single Cylinder Hydraulic Cone Crusher	CS420-CH890	Max inlet size 38-560 mm	Min outlet size 4-41 mm	Max installed power 90-750 kW
High Efficient Spring Cone Crusher	CS-75B-CS-315B	Feed opening 83-369 mm	Discharge size 9-64 mm	45-1270 t/h, 75-315 kW

How to read these parameters

Feed / inlet range Used for preliminary matching with jaw crusher or previous-stage discharge. Actual feed should remain within the selected cavity limit.	**Outlet / discharge range** Represents the practical product-size control zone. Output also depends on screen circuit, CSS and liner condition.
Capacity / power focus Indicates the machine range, not a guaranteed plant output. Throughput is affected by feed grading, hardness, moisture and recirculation load.	**Model range** Use the range to narrow machine family first, then confirm exact model and cavity by detailed technical parameter table.

For hard and abrasive material, capacity should be reviewed together with liner selection and screening efficiency. A small discharge target can reduce throughput and increase power load, especially when the feed contains too many fines or oversized particles.

4. Cavity Type and Output Size Selection

Cavity selection links feed size, reduction ratio, CSS and finished product requirement. A finer cavity can help reduce output size, but it also changes throughput, power draw and liner wear. The selected cavity should match both feed condition and downstream screening capacity.

Cavity Type	Typical Role	Selection Focus
Extra Coarse / Coarse	Larger feed, secondary crushing and high throughput	Feed size and capacity priority; suitable for early reduction after jaw crushing
Medium	Balanced crushing and product size control	General aggregate and mining use where capacity and gradation must be balanced
Fine / Extra Fine	Smaller output and finer gradation	Discharge size, liner wear and screening efficiency must be checked carefully

Do not select a cavity only by the smallest outlet size.	A cavity that is too fine for the feed can reduce capacity, increase liner wear and raise power load.
CSS is not an isolated setting.	CSS interacts with feed gradation, crusher speed, chamber profile and screening efficiency.
Feed control matters.	Oversized feed or excessive fines can disturb choke feeding and reduce crushing efficiency.
Mantle and concave wear changes the real chamber.	Worn liner profiles can shift product gradation, reduce capacity and increase recirculating load.

Recommended review sequence

Feed size -> Required output -> Cavity type -> CSS -> Screen aperture -> Recirculation load -> Liner wear plan

5. Application Matching Matrix

Application matching connects crusher type with material behavior and plant duty. The same cone crusher family may perform differently when feed hardness, abrasiveness, moisture and screening circuit change.

Working Condition	Recommended Cone Crusher Type	Reason
Granite / basalt aggregate plant	HP Series Multi Cylinder Hydraulic Cone Crusher	Hard rock, high load and stable output-size requirement
River pebble crushing	HP or CS/CH Hydraulic Cone Crusher	Abrasive material; cavity and liner selection are important
Mining ore crushing	HP Series or CS/CH Single Cylinder Hydraulic Cone Crusher	Stable reduction before grinding or beneficiation
Limestone aggregate plant	CS/CH or Spring Cone Crusher	Medium-hard material, capacity and discharge control
Conventional stone crushing line	High Efficient Spring Cone Crusher	Stable feed, simple structure and lower automation demand
Mobile crushing project	Mobile cone crusher configuration	Flexible site movement and secondary crushing after mobile jaw crusher

GEO relationship for product understanding

Cone Crusher -> Crusher Type -> Material -> Application -> Equipment Configuration

This matrix is intended for preliminary equipment matching. Final selection should use project-specific feed gradation, target product size, actual screen layout and maintenance access.

6. Model Selection Checklist

Use this checklist before confirming the final cone crusher model. It helps connect raw material data, machine configuration, cavity type and downstream equipment into one review path.

Selection Item	Selection Item
[ ] Raw material type	[ ] Material hardness
[ ] Abrasion level	[ ] Feed size from jaw crusher
[ ] Required output size	[ ] Required capacity
[ ] Crushing stage	[ ] Cavity type
[ ] CSS / discharge setting	[ ] Screening circuit
[ ] Wet or dry material condition	[ ] Hydraulic control requirement
[ ] Maintenance access	[ ] Mantle and concave replacement plan
[ ] Stationary or mobile plant layout	[ ] Spare parts and liner stock plan

Final review statement

The final cone crusher model should be selected according to the complete crushing circuit, not by capacity or feed size alone.

Important confirmation points

Capacity	Review actual feed gradation, CSS, moisture and recirculation load.
Wear parts	Confirm mantle and concave profile, material and replacement access.
Circuit match	Check feeder, screen, conveyor and downstream process before final model confirmation.