

Cone Crusher Selection Checklist

Feed Size, CSS, Chamber, Capacity and Screening Circuit Review

Purpose

Use this checklist before confirming a cone crusher model. It helps align feed size, product size, CSS, chamber type, capacity target, screening circuit, wear parts and protection system before quotation or technical approval.

Project / Site	Raw Material	Target Product	Capacity Target	Circuit Type
				Open / Closed circuit
Primary crusher discharge	Maximum feed size	Expected CSS	Screen opening	Operating hours

01 Crushing Duty and Circuit Position

Check	Selection Item	What to Confirm	Why It Matters
[]	Secondary crushing	Material after jaw crusher or primary crusher	Requires suitable feed opening and chamber acceptance
[]	Tertiary crushing	Smaller aggregate fraction after screening	CSS and screen return load become critical
[]	Fine crushing	Fine aggregate or sand-making feed preparation	Product shape and liner condition must be controlled
[]	Pebble / ore crushing	Hard, abrasive or variable ore feed	Power draw, tramp protection and wear cost need review
[]	Open or closed circuit	Direct discharge or screen return	Closed circuit improves size control but increases recirculating load

02 Feed Condition Checklist

Check	Feed Information	Record / Requirement	Selection Meaning
[]	Raw material	Granite / basalt / limestone / river pebble / ore / recycled material	Different hardness and abrasiveness change crushing load and liner wear
[]	Maximum feed size	Largest material entering the cone crusher	Confirms whether the chamber can accept the feed safely
[]	Main feed size / P80	Normal feed distribution from previous stage	Helps match chamber profile and reduction ratio
[]	Moisture and clay	Dry / wet / sticky / clay-bearing	Wet sticky feed can reduce capacity and cause buildup
[]	Fine content	Excessive fines before crushing	May cause packing and reduce chamber efficiency
[]	Feed consistency	Centered feed / non-segregated feed	Segregated feed creates uneven liner wear and unstable product size

03 Product Size, CSS and Chamber Selection

Define the required product size before comparing cone crusher models. The target product controls chamber type, CSS range, screening arrangement and the amount of return load in closed-circuit crushing.

Check	Target Product	Common Production Situation	Selection Meaning
[]	20-40 mm coarse aggregate	Road base, concrete aggregate, first screened product	Usually secondary or coarse tertiary crushing
[]	10-20 mm aggregate	Concrete, asphalt and commercial aggregate	Requires tighter CSS and proper screen matching
[]	5-10 mm fine aggregate	Fine aggregate production	Needs stable gradation and controlled liner wear
[]	0-5 mm sand-making feed	Material before VSI or sand-making system	Cone crusher reduces oversize and stabilizes next-stage feed
[]	Ore before grinding	Mining process feed preparation	Capacity, hardness, liner life and power draw become critical

Check	Chamber / Setting	Confirm	Risk if Wrong
[]	CSS working range	Expected operating CSS, not only minimum setting	Too small CSS can reduce capacity and accelerate wear
[]	Coarse chamber	Larger feed and secondary crushing	Product may be too coarse for fine aggregate
[]	Medium chamber	General secondary or tertiary crushing	Must match feed size and screen return load
[]	Fine / extra-fine chamber	Smaller product or sand-making preparation	Oversize feed may reduce capacity or cause blockage

04 Capacity and Screening Circuit Review

Check	Capacity Factor	What to Confirm	Effect on Output
[]	Stable tph target	Expected output under real material and circuit conditions	Catalog capacity may not match wet, clay-bearing or abrasive feed
[]	Bulk density	Site material density or design assumption	Changes real tons per hour through the chamber
[]	Screen opening	Required final aggregate size	Poor screen matching increases return load
[]	Screen area / efficiency	Whether finished product can leave the circuit quickly	Undersized screen can make the crusher re-crush finished material
[]	Return conveyor	Capacity for oversize material in closed circuit	Return load affects net saleable output and crusher load
[]	Discharge system	Conveyor and interlock with feeder	Prevents loading before discharge is ready

05 Crusher Configuration and Protection

Select the control and protection system according to the crushing duty. For hard rock, abrasive aggregate or metallic ore, hydraulic adjustment and protection reduce unplanned shutdown risk and help maintain stable product size.

Check	Configuration Item	Confirm Before Order	Practical Value
[]	Single-cylinder or multi-cylinder	Match to duty, product size and feed condition	Multi-cylinder design is often preferred for hard rock, tertiary and fine crushing
[]	Hydraulic CSS adjustment	Adjustment range and control method	Keeps output size closer to requirement during operation
[]	Tramp iron release	Protection against uncrushable material	Reduces chamber damage risk
[]	Hydraulic clearing	Clearing method after blockage	Shortens recovery time after chamber blockage
[]	Lubrication monitoring	Oil temperature, oil pressure and alarm logic	Protects bearings, bushings and hydraulic components
[]	Automation / interlock	Feeder, crusher and discharge conveyor logic	Improves start-stop safety and prevents overload sequence errors

06 Wear Parts, Spares and Maintenance Access

Check	Wear / Maintenance Item	Confirm	Why It Matters
[]	Mantle and concave	Profile, material and replacement plan	Controls chamber shape, product size and wear cost
[]	Bowl liner / liners	Set quantity and spare plan	Reduces downtime during scheduled replacement
[]	Abrasiveness review	Granite, basalt, river pebble or ore wear demand	High wear materials need stronger liner planning
[]	Inspection interval	Visual check, liner wear tracking and CSS verification	Prevents product size drift after liner wear
[]	Maintenance access	Space for liner change and hydraulic system service	Avoids difficult shutdown work after installation
[]	Spare parts route	Wear parts, seals, bushings, lubrication parts	Keeps continuous production lines from waiting on spares

Selection Note

Final review: do not select a cone crusher only by maximum catalog tph. Confirm feed size, product size, CSS, chamber, material behavior, screening circuit, wear parts and protection system together. A good selection should reduce blockage, unstable gradation, excessive return load and unplanned downtime before the machine is shipped.

Final Notes / Engineer Review
