Why Chooese Sizer Crusher In Limestone Crushing

Dimension	Sizer Crusher	Jaw Crusher	Cone Crusher	Impact Crusher	Hammer Crusher
Product block ratio / Particle shape	High — shear+compression yields concentrated particle distribution, good cubical shape and minimal fines; favorable for screening efficiency.	Medium — produces blocky fragments suitable for primary and secondary stages, particle shape generally adequate but not specialized for final shaping.	Medium–High — chamber selection and liners can produce good cubical shape and consistent product for secondary/tertiary duties.	High — impact crushing and subsequent rock-on-rock or rock-on-liner action produce good cubical particles but typically with increased fines.	Medium — tends to generate irregular fragments and higher fines for many rock types; less favorable for high-quality aggregate shapes.
Crushing efficiency (typical specific energy, kWh/t)	Typical: 0.2–1.0 kWh/t (low-speed, high-torque design; vendor-dependent).	Typical: 0.4–1.2 kWh/t (depends on feed and operating point).	Typical: 0.6–1.8 kWh/t (large high-power machines can optimize specific energy at scale).	Typical: 0.8–2.0 kWh/t (kinetic-energy based; higher at finer target sizes).	Typical: 0.7–1.8 kWh/t (highly dependent on rotor speed and hammer configuration).
Size adjustability / control	Moderate — controlled by tooth profile, roll segment configuration and feed control; certain models require engineering-matched roll gap.	Good — discharge setting (jaw gap) adjustable; straightforward control for coarse sizing.	High — discharge setting, eccentric throw and chamber profile offer a wide and flexible range of particle size control.	Good — rotor speed, blow bar configuration and impact curtain/linings provide flexible size control, albeit at expense of fines.	Moderate — screen selection, rotor speed and hammer geometry influence output gradation but distribution tends to be wide.
Maintenance expenditure & spare-part consumption (OPEX impact)	Low — low impact loads, segmented replaceable tooth blocks, long wear life and short downtime.	Low–Moderate — robust simple structure; jaw plates wear but replacement procedures are	Moderate–High — liner and mantle replacement costs are significant; major maintenance requires heavy lifting and	High — rotor, blow bars and wear liners experience rapid wear; frequent spare-part replacement increases OPEX.	High — frequent hammer and liner replacements; high labor and spare-part costs increase OPEX.

Resource utilization (yield of spec product / fines generation)	High — low fines, high yield of specification product; reduces downstream reprocessing and waste.	Moderate — moderate fines generation; yield depends on downstream screening/closed-circuit arrangement.	Moderate–High — when combined with proper chamber and closed-circuit design can achieve high yield.	Moderate — excellent particle shape but increased fines may reduce overall yield to spec product without additional	Lower — higher fines and flaky particles reduce usable yield for high-spec aggregates.
Equipment footprint / Structural & feed-height requirements	Compact layout; low headroom designs facilitate retrofits and loader feed integration.	Moderate footprint; higher feed elevation often required compared with low-head units.	Large footprint and substantial foundation works for medium-to-large units.	Medium footprint, variable depending on rotor size and enclosure design.	Medium to large footprint depending on housing and maintenance access requirements.
Material stress / Crushing mechanism	Shear + compression + cleavage (staged crushing reduces impact pulverization).	Compression/abrasion (crushing by compressive forces between fixed and moving jaw).	Predominantly compressive (crushing by high contact pressure and inter-particle breakage in chamber).	High-speed impact and shear (particle impact against blow bars and impact aprons).	High-speed impact with repeated hammer blows causing pulverization and plate shearing.
Relative power consumption (qualitative)	Relatively low for typical limestone applications (competitive specific energy).	Moderate — efficient for primary/coarse duty; energy per ton depends on reduction ratio	Moderate–High — depends on machine size and operating point; efficient at high throughput.	Moderate–High — kinetic losses and wear reduce power efficiency compared with low-speed compression machines	Moderate–High — significant kinetic losses and high wear can increase energy per ton over life cycle.
Fabrication & installation lead time	Short — modular pre-assembled design enables fast on-site installation and commissioning.	Short–Moderate — smaller units install quickly; large units require foundations and lifting equipment.	Long — heavy components and foundations extend installation and commissioning time for large installations.	Moderate — rotor balancing and protective component installation are time-consuming but common practice.	Moderate — rotor assembly, balancing and frequent component changes add to installation & commissioning tasks.

Wear characteristics & typical wear mode	Low — distributed wear on replaceable tooth segments; lower abrasive loss than high-speed impact machines.	Moderate — wear concentrated on jaw plates and bearings; predictable wear pattern.	Moderate–High — wear on liners, mantle and bowl; wear rate increases with abrasive or hard feed.	High — repeated impact causes fast wear of blow bars and liners.	High — hammer heads and wear plates exhibit rapid abrasion and impact wear.
Throughput capacity (typical ranges)	Designable from tens t/h to multi-thousand t/h (vendor-configurable).	From small laboratory scales to several thousand t/h for large units.	Ranges from tens to >1000 t/h depending on model and size.	Commonly specified from ~30 to several hundred t/h for standard models; larger specialized machines exist.	Typically tens to a few hundred t/h depending on model and application.
Disassembly & component replacement complexity	Low–Moderate — modular roll/segment replacement simplifies on-site works.	Moderate — jaw plate replacement requires lifting and alignment but procedures are	High — disassembly of mainshaft, liners and bowl requires heavy-lift capability and alignment procedures.	Moderate — rotor removal and replacement require skilled crews and specific tooling.	Moderate–High — frequent component change-out and balancing required for sustained operation.
Relative feed height (headroom)	Low headroom — suitable for low-infeed-height installations.	Moderate — often requires hopper/feeder to deliver material at suitable height.	Moderate–High — typically requires hopper/feeder and adequate headroom.	Medium — installation usually requires moderate headroom and structural support.	Medium — depends on feed chute and hopper design.
Maximum recommended compressive strength (typical applicability)	Suitable for medium to medium-high strength rocks; commonly applied to limestone (typical limestone <150 MPa).	Applicable across a wide strength range; commonly used up to medium-high compressive strengths.	Suitable for medium to very high compressive strength materials; robust for hard rock applications.	Generally applied to medium hardness materials; hard abrasive feeds accelerate wear significantly.	Best suited for softer to medium-hard materials; not economical for very hard, abrasive rock.

Economic assessment (CAPEX / OPEX / TCO) — engineering judgement	Engineering-favorable: moderate CAPEX, low OPEX due to reduced wear and fines; lowest TCO in many limestone secondary scenarios.	Engineering judgement: relatively low-to-moderate CAPEX; stable OPEX; TCO depends on duty and production scale.	Engineering judgement: higher CAPEX for large installations; OPEX moderate-to-high (liner costs); favorable TCO at very large scales or extremely hard rock.	Engineering judgement: moderate CAPEX; higher OPEX driven by wear and fines management; TCO often higher unless particle shape is the overriding objective.	Engineering judgement: low initial CAPEX but elevated OPEX due to wear and downtime; overall TCO often less favorable for high-duty sekundary crushing.