

Welcome! to our world

RM[®]
GROUP

NATURAL ROCK CRUSHING

WITH MOBILE IMPACT CRUSHERS



YES IMPACTORS CAN HANDLE HARD NATURAL ROCK

Natural rock crushing has evolved. While jaw and cone crushers are still common choices, modern impact crushers have proven that they can handle far more than just soft materials. With the right wear protection and setup, they are now a strong and efficient option for many rock applications — often replacing multiple machines.

This guide outlines the key fundamentals for anyone aiming to process natural rock efficiently and consistently, using mobile impact crushers — whether operated as standalone units or in combination with jaw crushers and screening equipment.



**PRODUCE AGGREGATES
THAT MEET SPEC**



**MAXIMIZE EFFICIENCY
AND PROFITS**

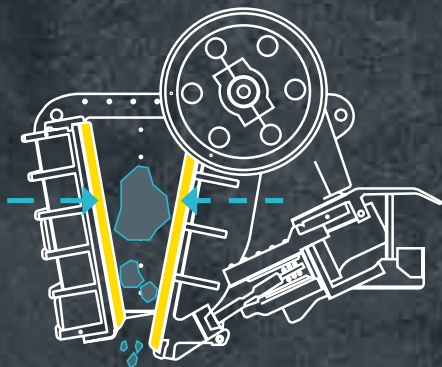


**RUN A SETUP THAT
OPERATORS LOVE**



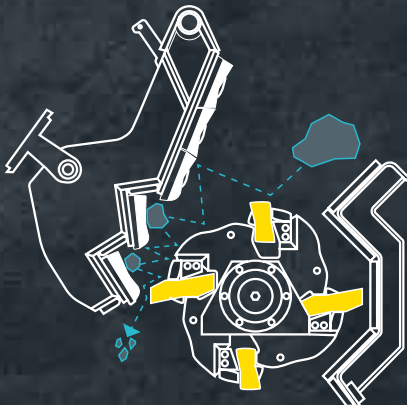
THE BASICS: HOW DOES AN IMPACT CRUSHER WORK?

There are two major crushing principles in mobile applications: compression crushing and impact crushing:



COMPRESSION CRUSHING

- Used by jaw and cone crusher
- Rock is squeezed between two surfaces, like a „nutcracker“
- Low reduction ratio (Between 6:1 and 8:1)
500 mm | 20” rock comes out as 80 mm | 3”
- Often produces more flaky material
- Less wear
- Struggles with soft materials (e.g. asphalt, rock mixed with dirt, ...)



IMPACT CRUSHING

- Used by horizontal shaft impactors (HSI)
- A rotor throws rocks against impact aprons
- High reduction ratio (Between 12:1 and 20:1)
500 mm | 20” rock comes out as 40 mm | 1½”
- Clean, cubical product
- More wear
- Multiple adjustments to adjust the final gradation

IMPACT CRUSHERS WORK HARDER TO REDUCE THE MATERIAL

Impact crushers can achieve **up to three times the reduction ratio of compression systems**, thus the higher wear. More reduction = fewer machines needed, resulting in lower total operating & owning costs.



COMPRESSION CRUSHER

IMPACT CRUSHER

WHAT DIFFERENT **ROCK** TYPES MEAN FOR CRUSHING



LIMESTONE

- Usually low abrasion
- Easy to crush -> High throughput
- Ideal for impactor crusher
- 600-700 mm | 24-28" feed in one machine down to final product size



GRANITE & BASALT

- Hard and abrasive
- Suitable for impactors if feed size is controlled
- Often combined with a jaw crusher for primary reduction
- Hammer selection and thicker wear plates are essential to maximize uptime



RIVER GRAVEL

- Mostly round and hard material
- Impact crushers grip and break rounded stones better than jaws and cones
- Excellent shaping and fewer round stones in the final material
- Superior final product for road construction

WHY IMPACT CRUSHERS PRODUCE **A SUPERIOR MATERIAL**

1. CUBICAL SHAPE

A cubical stone has more edges. This results in major advantages in road construction applications.

- ✓ **Interlocks** better in road layers
- ✓ **Compacts** more tightly
- ✓ Higher **breaking resistance**
- ✓ Less empty space
- ✓ Better gradeability

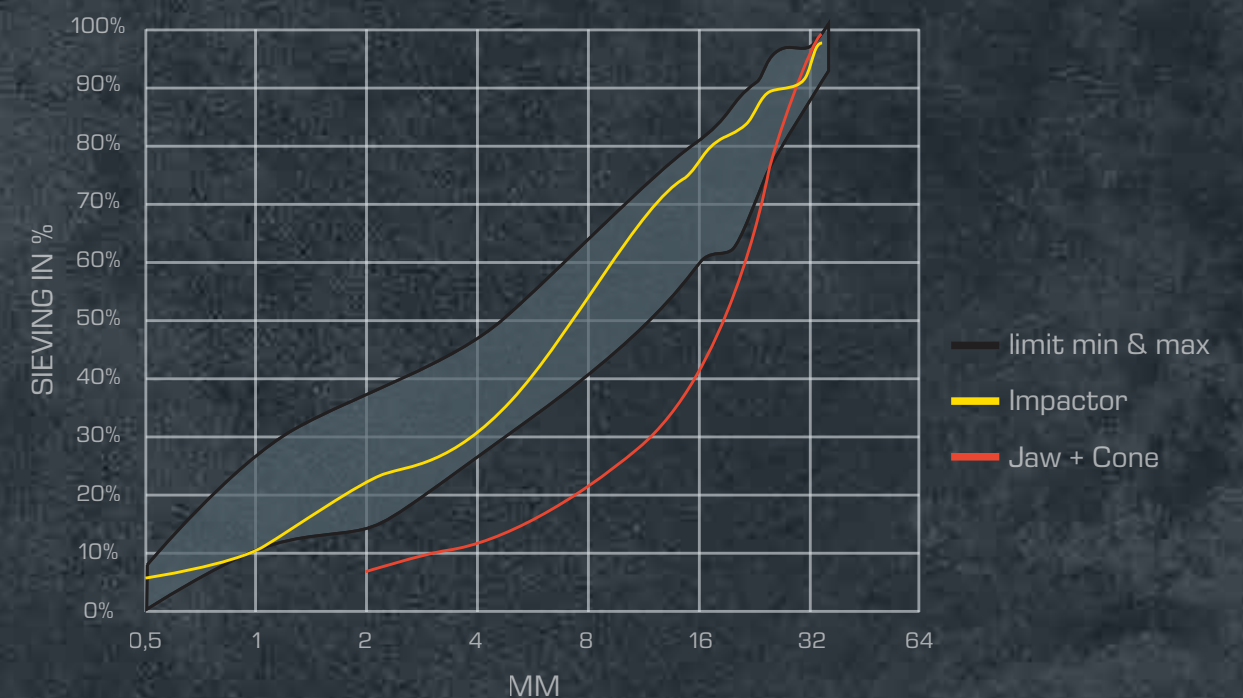
2. MORE FINES IF NEEDED

Impact crushers naturally generate more fine material. This is a major advantage in road construction, asphalt mixes, and the production of well-graded road base and subbase materials. The fine material is needed to fill voids and achieve good compaction of the base and subbase layers.

3. BETTER GRADING CURVE

Especially in road construction, hitting the required grading curve (e.g. 0/32 | 1¼"- or 0/45 | 1¾"- with sufficient fines) is essential. Mobile impact crushers offer a wide range of adjustments — including apron settings and rotor speed — and, with onboard screens and a return conveyor, often deliver specification material in a single pass, even where jaw and cone setups fall short.

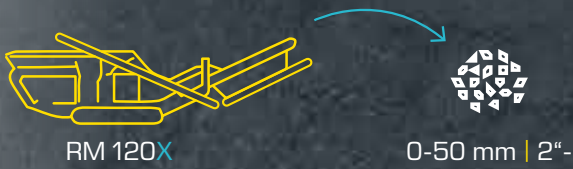
Get the spec right. Every time.



A TRADITIONAL JAW AND CONE SETUP COSTS YOU

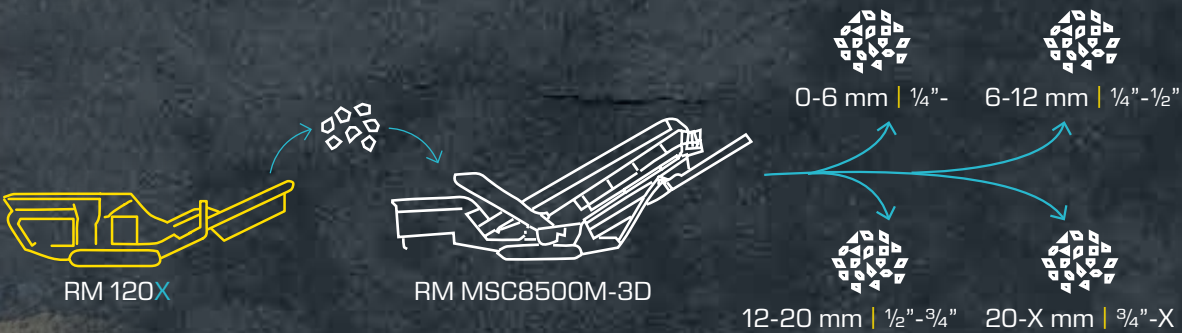
IMPACT VS JAW AND CONE CRUSHERS

Mobile cone crushers often need a primary jaw—making setups complex and costly, with limited quality. RUBBLE MASTER impact crushers deliver equal or better results with fewer machines, lower costs, simpler logistics, competitive throughput, and superior material.



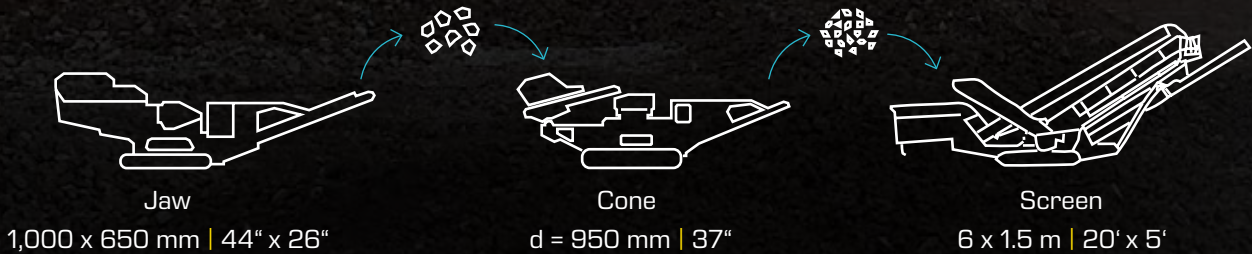
CLOSED-CIRCUIT IMPACT CRUSHER

Highly efficient for soft-to-medium-hard materials and hard-rock applications, with controlled feed size, to produce a spec material (e.g. road base) in a single pass.



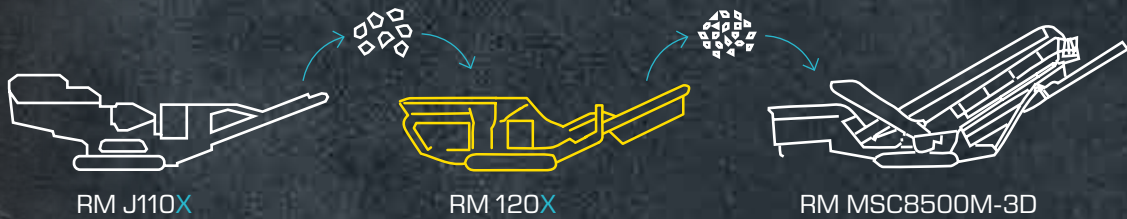
IMPACT CRUSHER AND SCREENER SETUP

Highly efficient for soft-to-medium-hard materials and hard-rock applications, with controlled feed size, to produce multiple products (e.g. aggregates for concrete & asphalt).



TRADITIONAL SETUP

- ✓ Proven in hard rock
- ✓ Low wear costs
- ✓ Limited reduction ratio (some applications require 2 cone crushers)
- ✓ Limited sand production (15-20% only)
- ✓ Inferior material shape (elongates)
- ✓ High fuel consumption
- ✓ High logistics costs
- ✓ Not suited for concrete recycling
- ✓ More operators required



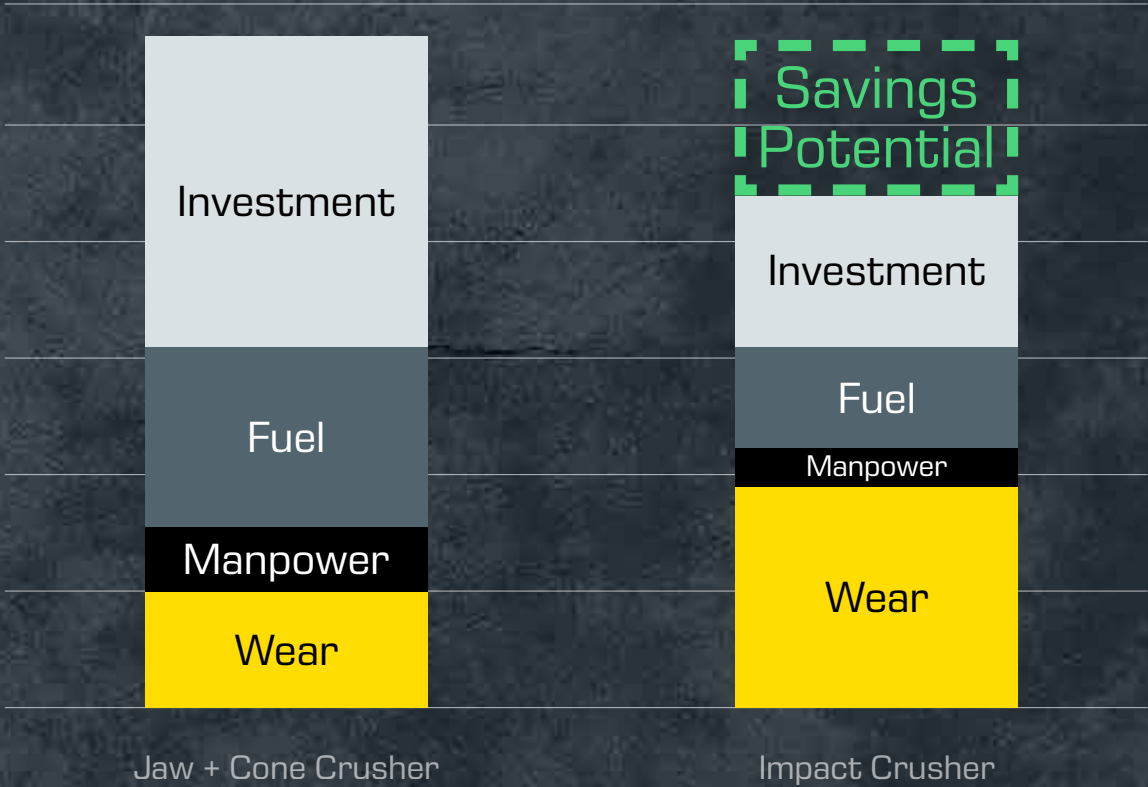
JAW AND IMPACTOR SETUP

Best suited for abrasive and harder materials with a large feed size, offering high throughput.

THE REAL COST DRIVER: ADDITIONAL MACHINES, NOT WEAR

Many compare only wear costs between impactors and cone crushers. But wear costs are only one part of the total cost. Even if an impactor has higher wear-costs than jaw and cone crushers, the savings in fuel, labor, mobility, and investment are often much greater when talking about mobile machines! In many applications you cannot recoup the higher investment costs over the lifetime of the machine.

1/2 MAINTENANCE 1/2 INSURANCE COSTS 1/2 MOBILIZATION COSTS



RUBBLE MASTER IMPACT CRUSHERS SAVE COSTS BY:

- ✓ Using fewer machines to accomplish the job
- ✓ Requiring fewer operators due to a simple operation
- ✓ Using less fuel through efficient diesel-electric direct drives and fewer machines
- ✓ Reducing transport costs due to fewer and easier moves
- ✓ Reducing monthly payment (compared to jaw and cone setups)
- ✓ Spending less on insurance and maintenance.
- ✓ Eliminating wasteful rehandling of material that doesn't meet spec.
- ✓ Reducing time to job-site preparation and setup.
- ✓ Simplifying the operator onboarding due to advanced, intuitive controls.

RUBBLE MASTER IMPACT CRUSHERS **IN THE FIELD**

WHERE VERSATILITY AND PRODUCT QUALITY WIN OVER TRADITIONAL SETUPS



RIVER GRAVEL

FEED MATERIAL	OUTPUT	APPLICATION	CAPACITY
0-300 mm 0-12"	0-40 mm 0-1½"	Base Material	100 tph 110 stph

- ✓ Primary and secondary crushing with one closed-circuit RM 100GO! mobile impactor
- ✓ Handles round stones better than jaw and cone crushers
- ✓ Produces a high-quality base material from river gravel, with fewer round rocks in the product
- ✓ Tolerates higher fines and clay content compared to a jaw or cone crusher
- ✓ Perfect stand-alone solution: River gravel is often too small for a jaw but too large for a cone — the impactor fits this gap perfectly



RIVER GRAVEL

FEED MATERIAL	OUTPUT	APPLICATION	CAPACITY
0-400 mm 0-16"	0-6 mm 0-¼" 6-12 mm ¼-½" 12-25 mm ½-1"	Aggregates for Asphalt	100 tph 110 stph

- ✓ Primary and secondary crushing with one RM 100GO! closed-circuit impact crusher and the RM CS3600 compact screen attachment with 2 screen decks
- ✓ Reduced diesel consumption due to the electric drive
- ✓ RM CS3600 runs with the crusher's electric surplus power
- ✓ One-man operation
- ✓ The most compact and cost-efficient gravel crushing plant



"I have seen many machines and, in comparison, RM machines are extremely fuel-efficient. In our current project, we consume about 50 liters/h with both, our RM 120GO! and the RM MSC10500M post screen. We are very happy with our choice!"

ENRIQUE BOBADILLA, MINAS LAS DERRUMBADAS, MEXICO



LIMESTONE **SOFT**

FEED MATERIAL	OUTPUT	APPLICATION	CAPACITY
0-700 mm 0-28"	0-50 mm 0-2"	Subbase	150 tph 165 stph

- ✓ Primary and secondary crushing with one RM 100GO! closed-circuit mobile impactor
- ✓ One-man operation
- ✓ Track and crush functionality to windrow the material eliminating the need for a stacker
- ✓ High reduction ratios for efficient size reduction
- ✓ One impact crusher can replace a jaw-cone setup



BASALT **HARD ROCK**

FEED MATERIAL	OUTPUT	APPLICATION	CAPACITY
0-450 mm 0-17"	6-19 mm 1/4-3/4" 0-6 mm 0-1/4"	Aggregates for Asphalt	374 tph 412 stph

- ✓ Innovative crushing solution combining two mobile impactors with a sizer screen featuring an extended screening surface
- ✓ Delivers high value, well shaped material
- ✓ Simultaneous use of two impact crushers significantly boosts production



"Since we started working with RM, we realized that the quality of the final product is very good – due to the type of crushing that is used – impact crushing. It is the best quality we have found on the market. We have done comparisons with many different types of crushing brands, and we are very happy working with RM."

**GABRIEL MELÉNDEZ, GRUPO INDI,
MEXICO**



BASALT MEDIUM HARD ROCK

FEED MATERIAL

0-500 mm | 0-20"

OUTPUT

0-6 mm | 0-1/4"
6-12 mm | 1/4-1/2"
12-25 mm | 1/2-1"

APPLICATION

Aggregates for Asphalt

CAPACITY

120 tph | 130 stph

- ✓ Complete crushing and screening with one impactor plus one incline screen
- ✓ Produces high value aggregates in a single pass
- ✓ One operator solution with a quick, straightforward fully mobile setup



BASALT MEDIUM HARD ROCK

FEED MATERIAL

0-500 mm | 0-20"

OUTPUT

0-35 mm | 0 - 1 1/2"
35-X mm | 1 1/2" - X

APPLICATION

Road Base Material

CAPACITY

160 tph | 165 stph

- ✓ Primary and secondary crushing with a RM 120X mobile impactor
- ✓ High-quality end material
- ✓ One-man operation
- ✓ Return conveyor swings out to produce 2 end products and maximize throughput
- ✓ Replacing a jaw and cone crusher with one machine



"Since purchasing the first RM 120X impact crusher we have achieved higher production volumes, exceptional quality of crushed material and lower operating costs with fewer machines in operation. The RM 120X impactor carries out the same job that was previously done by three crushers."

EDMILSON FIGUEIREDO, CALCÁRIO BOTUVERÁ, BRASIL



GRANITE **HARD ROCK**

FEED MATERIAL	OUTPUT	APPLICATION	CAPACITY
0-700 mm 0-28"	0-50 mm 0-2"	Subbase Material	300 tph 330 stph

- ✓ RM J110X Jaw and RM 120X closed-circuit impact crusher for maximum production and minimum wear
- ✓ Jaw crusher takes the brunt
- ✓ Impact crusher with the screen attachment produces the finished product in one pass.
- ✓ Due to the controlled feed size, the impact crusher can be equipped with wear-optimized Chrome hammers.



GNEISS **HARD ROCK**

FEED MATERIAL	OUTPUT	APPLICATION	CAPACITY
0-800 mm 0-32"	0-35 mm 0- 1½" 35-90 mm 1½-3½"	Base & Subbase Material	350 tph 385 stph

- ✓ Secondary crushing with a mobile impactor + hanging screen
- ✓ Combined with a jaw crusher as primary and a post-screen = fully mobile crushing train
- ✓ High capacity setup built for tough, large feed material and applications requiring big volumes

RUBBLE MASTER KEEPS YOU **CRUSHING LONGER**

35+ YEARS EXPERIENCE

Our proven proprietary crusher geometry delivers powerful reduction ratios and consistently high product quality. Decades of refinement and a strong focus on real-world operation ensure maximum uptime, fast adjustments, and minimized risk of costly failures caused by operator error or uncrushable materials.

MAXIMUM SAFETY

Including features like ground based service, full remote control operation (one operator only), and status lights for clear and safe on site communication.

CRUSH & SCREEN IN ONE PASS

Produce spec material (e.g.: road base) in a single pass with the screen attachment and return conveyor. Without a separate screening plant, you run more efficiently at a smaller footprint.

SAVE UP TO 30% IN FUEL

Cut fuel consumption by up to 30% compared to diesel-hydraulic plants—delivering more tons per liter/gallon with stable performance in any climate. No overheating, no warm-up delays, no hydraulic mess—just lower operating costs and higher efficiency over the lifetime of the machine.

MAXIMUM MOBILITY

One operator can set up the machine in as little as 20 minutes—no special tools required. Transport and permitting are easy, allowing you to move faster between jobs and maximize on-site productivity.

MAKE CRUSHING EASY

Simplify your operation with intuitive controls, easy setup, and built-in troubleshooting. An ultra-bright 12" display with advanced operator assistance helps your crew stay productive, make faster decisions, and get the most out of every shift.



MAXIMIZE YOUR **UPTIME** & IMPROVE COST PER TON

WITH THE RIGHT WEAR PARTS

Correct hammer selection — and the use of the right wear parts — ensure less downtime, predictable wear, and no breakage, allowing you to fully benefit from what impact crushers can deliver. RUBBLE MASTER impact crushers can be equipped with the following hammer options.

STANDARD HAMMERS



MARTENSITIC WITH CERAMIC INLAYS

ALL MODELS

- ✓ Larger feed
- ✓ Primary and secondary crushing
- ✓ Balanced wear and toughness
- ✓ Reinforced concrete



MARTENSITIC WITH EXTRA CERAMIC INLAYS

RM 120X

- ✓ Improved wear pattern towards the corners



CHROME

ALL MODELS

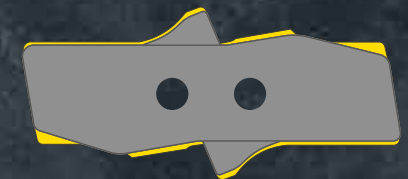
- ✓ Abrasive rock
- ✓ Smaller feed size of up to 300 mm | 12"
- ✓ Uncrushables and large rock could result in hammer breakage

HEAVY-DUTY HAMMERS FOR MORE UPTIME ^{NEW}



MARTENSITIC WITH CERAMIC INLAYS

RM 90X AND RM 100X



CHROME

RM 90X AND RM 100X

- ✓ **Yellow area** shows additional HD hammers vs. standard

THICKER SIDE PLATES GIVE YOU **20% MORE WEARABLE MATERIAL**

Ideal for highly abrasive materials. Instead of standard Hardox 450 25 mm (1"), the machine can be equipped with 30 mm (1 1/5") wear plates and up to Hardox 600 quality.

WHAT TO DO NEXT?

GET A FREE, NO OBLIGATION SETUP REVIEW

Not sure if your setup is truly optimized — or thinking about making changes? Let an expert take a look. Avoid costly mistakes and discover quick wins for better performance!

For more than 35 years, RUBBLE MASTER has supported over 4,000 contractors and aggregate producers worldwide in improving their material processes. As the global leader in mobile impact crushing, we know how to get the most out of your crusher fleet.

Take 30 seconds before you call — avoid setup mistakes, reduce risk, and get a mobile crushing solution that actually works. Use the white fields to write your answer down.

WHY THIS CHECKLIST MATTERS:

- Speeds up the consultation
- Avoids wrong setup decisions
- Reduces risk & unexpected costs
- Improves product quality & stability
- Helps identify if an impact crusher alone is enough
- Prevents overspending on unnecessary machines

1. Material type — What natural rock are you processing?

Limestone, granite, basalt, andesite, river gravel, gneiss, ...

2. Maximum input size — What's the largest piece entering the crusher?

Measure the biggest edge in mm/cm/inch.

3. What end products do you need and what are they used for?

Eg. $\frac{0}{32}$, $\frac{0}{45}$, $\frac{0}{63}$, $\frac{0}{5}$, $\frac{16}{32}$... or Road Construction, ...

4. Required throughput — What production rate do you need?

Target performance in t/h feeding or a specific end product

5. Moisture & clay content — How wet or sticky is your material?

Low — Medium — High (add percentage if available)

6. Abrasiveness and Hardness — How abrasive is the rock?

Low — Medium — High (Add any available test results for abrasiveness and/or material hardness)

7. Space & jobsite layout — How much room do you have?

Stockpile space, access routes, loader movement, transport lanes

8. Fuel & energy requirements — Do you have consumption or CO₂ targets?

Diesel-electric, plug in options, hybrid workflows, fuel limits

BEFORE YOU START CRUSHING AVOID THESE COMMON MISTAKES:

- ✗ feeding material that is too large
- ✗ Underestimating abrasiveness or lack of rock analysis
- ✗ Poor jobsite layout leading to inefficiency
- ✗ Ignoring fines content and skipping prescreening
- ✗ Incorrect hammer selection



GET IN TOUCH WITH YOUR LOCAL DEALER TODAY!

Welcome! to our world



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