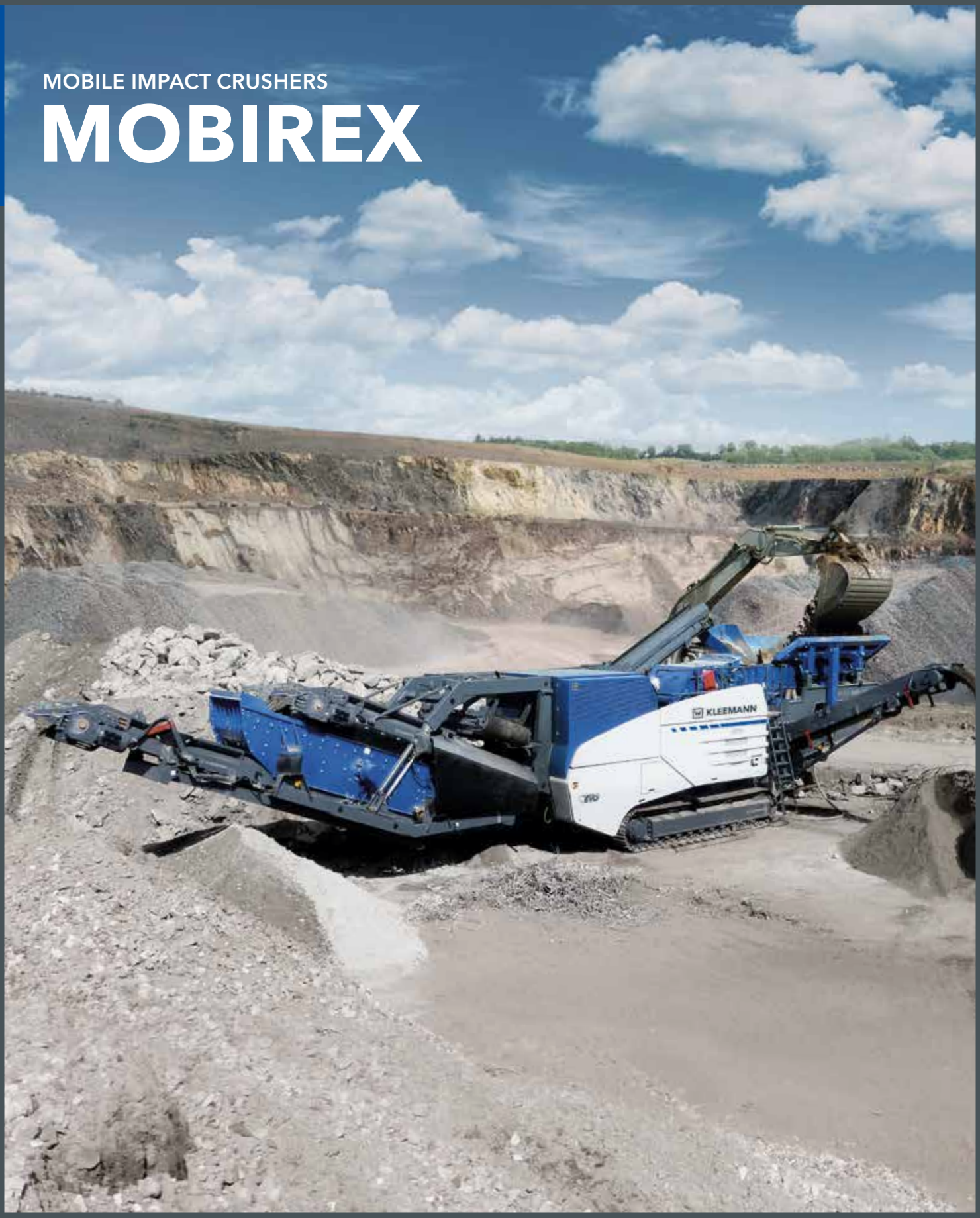
A WIRTGEN GROUP COMPANY

KLEEMANN

MOBILE IMPACT CRUSHERS

MOBIREX



COMPETENCE AS TRADITION

KLEEMANN is part of the WIRTGEN GROUP, a group of companies in the plant construction industry who operate on an international level. This Group includes the five well-known brands, WIRTGEN, VÖGELE, HAMM, KLEEMANN and BENNINGHOVEN, with their headquarters in Germany and local production sites in Brazil, India and China. Customer service is provided worldwide through its 55 independent sales and service outlets.

KLEEMANN: KNOW-HOW, INNOVATION, QUALITY

For the past 100 years, KLEEMANN GmbH has been developing and manufacturing machines and plants for the natural stone and recycling industry.

WIRTGEN GROUP

Through the WIRTGEN GROUP, KLEEMANN can offer service and support throughout the world. Optimum customer care and performance and availability of the plants are thus guaranteed at all times.

As an innovative manufacturer of mobile crushing and screening plants, KLEEMANN impresses with high quality, state-of-the-art technologies and superior application know-how.


MOBILE
IMPACT CRUSHERS
MOBIREX
MOBICONE
MOBILE
CONE CRUSHERS
KLEEMANN
MOBICAT
MOBILE
JAW CRUSHERS
MOBISCREEN
MOBILE
SCREENING PLANTS
KLEEMANN

MOBIREX
MOBILE IMPACT CRUSHERS

- For high crushing rates and highquality end product with cubic grain shape in the 1st and 2nd crushing stage

USE IN:
> soft to medium-hard natural stone
> recycling

MOBICONE
MOBILE CONE CRUSHERS

- For recrushing in the 2nd and 3rd crushing stage

USE IN:
> medium-hard to hard, abrasive natural stone
> mining applications

MOBICAT
MOBILE JAW CRUSHERS

- For coarse and pre-crushing

USE IN:
> medium-hard to hard natural stone
> recycling
> mining applications

MOBISCREEN
MOBILE SCREENING PLANTS

- Screens for process or coarse elements

USE IN:
> all natural stones
> residual construction materials
> iron

MOBIFOX
MOBILE IMPACT CRUSHERS

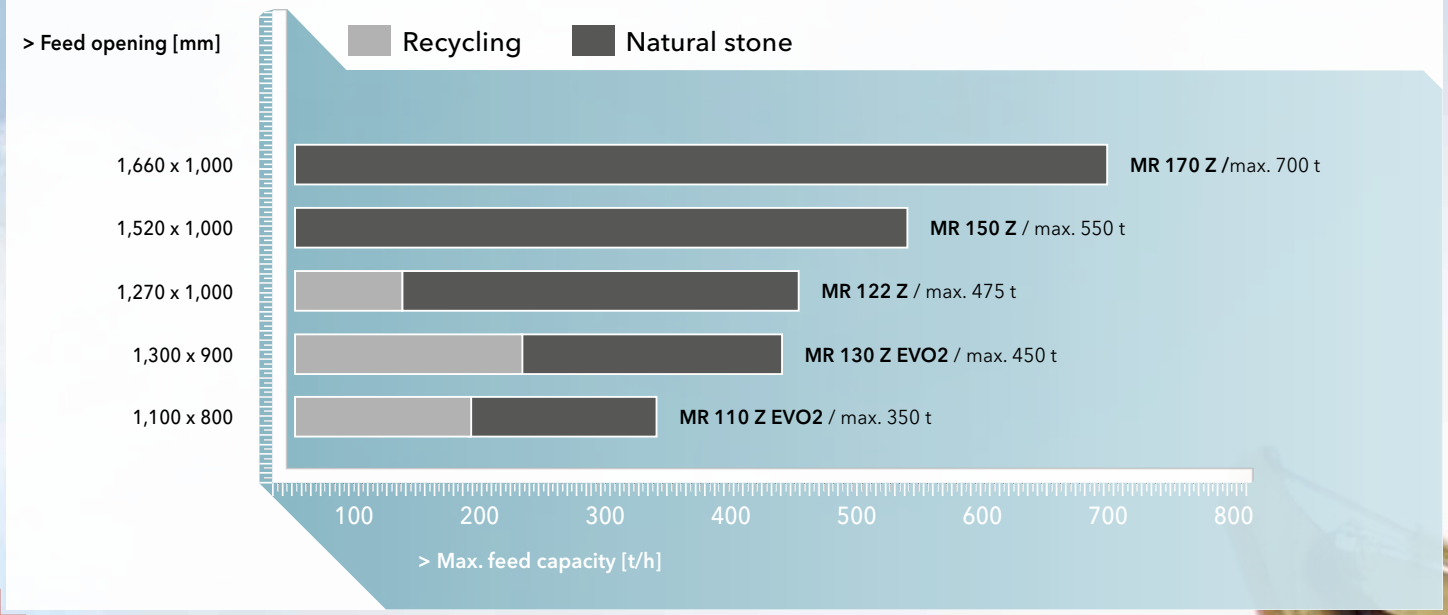
- For recrushing in the 2nd and 3rd crushing stage

USE IN:
> moderate abrasive natural stone

MOBIREX – THE MOBILE IMPACT CRUSHERS FROM KLEEMANN

Mobile impact crushers of the MOBIREX series are deployed in soft to medium-hard natural stone and for reprocessing residual construction materials. The performance of the plant systems is immense – not just in terms of pure volume reduction. Costs and environmental awareness, availability, versatility and, above all, the quality of the end product to be produced are important aspects that speak for the MOBIREX impact crushers from KLEEMANN. Whether quarrying or on the construction site – stone is crushed with MOBIREX plant systems so efficiently that the grain shape, grain distribution and cleanliness meet the high demands of the concrete and asphalt aggregates standards.

APPLICATION OF THE MOBIREX PLANTS



MOBIREX EVO-LINE MOBILE IMPACT CRUSHER

THE POWERFUL ALLROUNDER

High material flow rates:
Optimised material flow thanks to expanding system widths

Continuous crusher feed with innovative feed control CFS (Continuous Feed System)

Fast setting up times and highest operating safety:
Hydraulic hopper lock can be operated from ground level

Outstanding final product quality:
Effective prescreening thanks to independent double-deck prescreen

Simple, user-friendly operation and fast diagnosis in the event of a fault: Complete control concept with menu-guided touch panel

YOUR ADVANTAGES AT A GLANCE

Flexible: For diverse end products.
Agile and compact: During transport and in use.

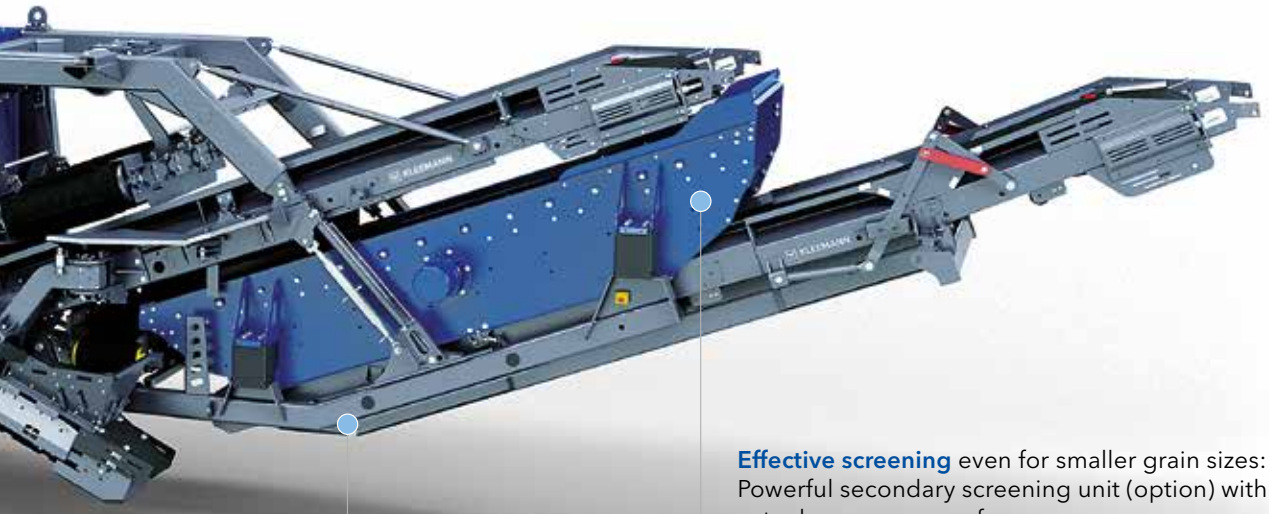
The MOBIREX EVO-Line plant systems can be deployed in many ways: Not only in natural stone but also in residual construction material processing, they ensure first class product quality and are capable of impressive material flow rates. Furthermore, the impact crushers are comparatively easy to transport. The flexible drive concept enables trouble-free operation even as deployment conditions change.

> Use in natural stone

Optimum crushing result: Crusher unit with innovative C-shape rotor ledges for better impact over long periods; fully hydraulic crusher gap adjustment via touch panel

Safe rotor ledge replacement: Lock & Turn safety system

Frugal consumption: Efficient and powerful diesel-direct drive with fluid coupling for protection of the plant



Effective screening even for smaller grain sizes: Powerful secondary screening unit (option) with extra large screen surface

Easy to transport: Trouble-free loading thanks to greater ground clearance. Secondary screening unit can simply be transported separately using hooklift system

> Use in recycling

MOBIREX MR 110/130 EVO2
THE COMPACT POWER PACKS

The mobile impact crushers of the EVO-Line can be deployed universally and produce first class final product quality. Despite their comparatively compact crusher inlet widths of 1,100 mm or 1,300 mm (MR 110 EVO2 / MR 130 EVO2), they achieve outputs that up to now were only known to be possible with distinctly larger crushing plant systems. This is made possible by outstanding cost effectiveness and performance with a variety of technical highlights. Thanks to their compact design, the plant systems are easy to transport and can be assembled and disassembled again quickly.

THE KLEEMANN APPLICATION RECOMMENDATION

- Processing of soft natural stone in 1st crushing stage
- Processing of soft and medium hard natural stone in 2nd crushing stage
- Processing of residual construction materials such as rubble
- For varying deployment locations thanks to ease of transportation
- For medium to large batch sizes

APPLICATION

In natural stone, depending on the type of stone, in the 1st or 2nd crushing stage. In recycling for processing mineralbased rubble

First class final product quality, versatile areas of use, high machine availability: MOBIREX EVO2.

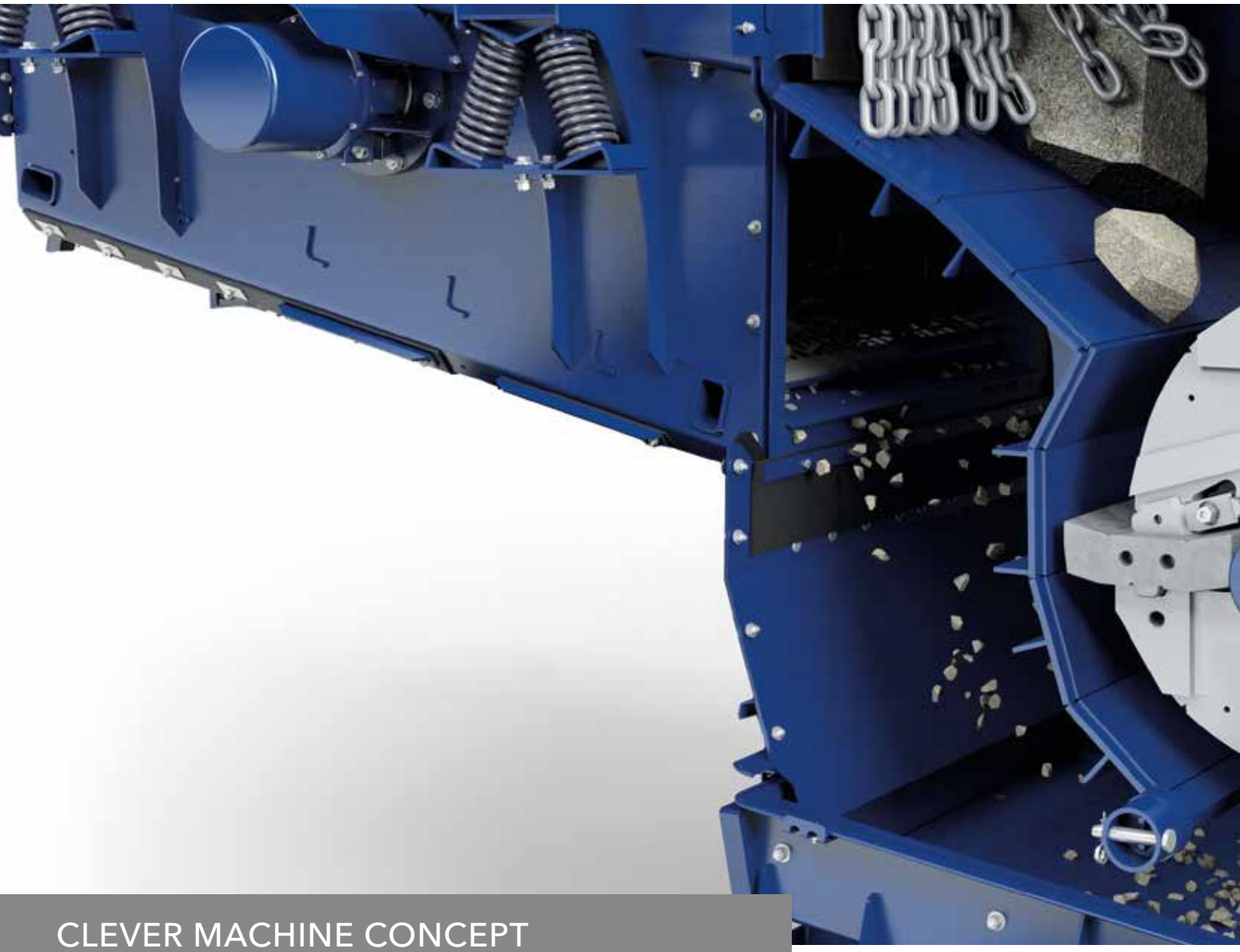
Technical information MR 110 Z EVO2

Feed capacity up to approx.	350 t/h
Crusher inlet (W x H)	1,100 x 800 mm
Weight	43,900 kg
Engine/motor output	371 kW

Technical information MR 130 Z EVO2

Feed capacity up to approx.	450 t/h
Crusher inlet (W x H)	1,300 x 900 mm
Weight	48,500 kg
Engine/motor output	371 kW

CRUSHER UNIT – FEATURING MANY INNOVATIVE HIGHLIGHTS



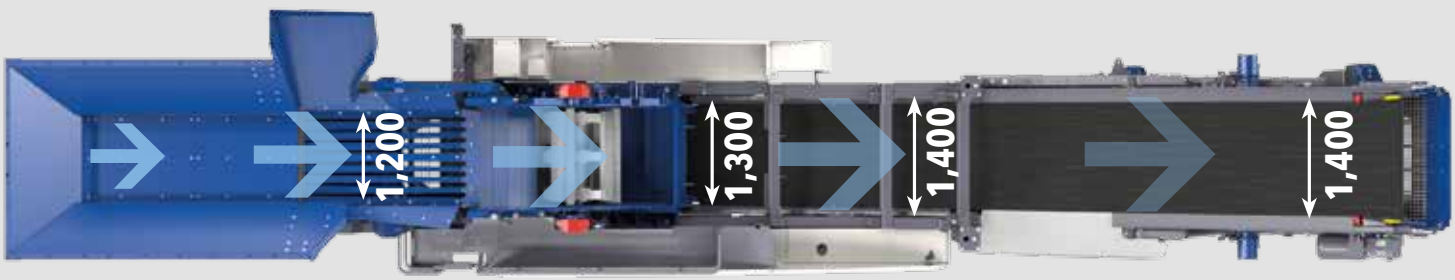
CLEVER MACHINE CONCEPT

Optimised material flow for greater economy.

The MOBIREX EVO2 plant systems stand out with numerous technical innovations – notably the unique material flow concept, which is evident throughout the whole machine. This makes it possible to achieve high material flow rates.

- Extension of system widths across all components in material flow direction
- Material stream is not restricted
- Higher total throughput with lower fuel consumption
- Longer service life thanks to reduced wear

Thanks to its special inlet geometry, the crusher unit of the MOBIREX EVO2 plant systems is capable of drawing in the material optimally and, in the process, guarantees high material flow rates. The crusher inlet cover and the upper impact toggle in the inlet area can be hydraulically raised by means of remote control – thereby facilitating effective bridging reduction. The fully hydraulic overload system protects the machine effectively against damage in the event of uncrushable material. The clever rotor ledge clamping system and the innovative "Lock & Turn" safety system mean that replacing the rotor ledge is quite simple and safe.



LOCK & TURN – OUTSTANDING SAFETY SYSTEM

The "Lock & Turn" system provides the highest level of safety during rotor ledge change and releasing bridging. Special keys for maintenance flaps and components ensure that work is only ever performed in one area of the crusher at the same time respectively.

If the operator wishes to continue work in a different hazard area, he/she must withdraw the key from the previous area, which in turns locks and secures it automatically.

A plug-in locking and rotating device also allows the rotor of the crusher to be turned and blocked manually in any position from the outside. This enables the replacement of rotor ledges and makes it possible to remove blockages safely.

> ABRIDGED INSTRUCTIONS

STEP 1

To safely lock the rotor, the machine operator first triggers the "Lock rotor" command on the touch panel that is used to control the plant.

STEP 2

In this way, the rotor locking and rotating device is enabled and can be moved with a crank on the gear ring of the crusher belt pulley.

STEP 3

Following this, the operating element is inserted in the enable station of the system. The rotor is now locked securely and the keys to open the danger areas are released.

STEP 4

Once the keys are removed, the operating element and thereby the locking device can no longer be released – the rotor remains reliably secured.

STEP 5

The crusher housing can be opened after inserting a special key. When the housing is open, the key can no longer be withdrawn and blocked material can be safely removed - the rotor is safely blocked.

STEP 6

The safety system also boosts comfort. With the crank on the rotor locking and rotating device, the operator turns the rotor without putting himself/herself at risk and, in this way, can move it to the optimum position for replacement of the rotor ledges.

CRUSHER GAP ADJUSTMENT – QUICK AND EASY

Precision crusher gap adjustment while the rotor is running

To make changes to the material or the desired end grain size, a simple crusher gap adjustment is indispensable.

On the MOBIREX MR EVO2 plant systems, adjustment of the crushing gap is fully hydraulic and can be carried out from ground level via the touch panel – even while the rotor is running! A real bonus for efficiency and productivity.

CONVEYOR CONTROL – CONTINUOUS FEED SYSTEM (CFS)

The Continuous Feed System (CFS) makes an essential contribution to the high performance of the plant.

- Sensors measure the load of the rocker and the rotor.
- Depending on the load status of the crusher, the conveying frequencies of the vibrating feeder and the prescreen can be regulated independently of each other.
- Once the crushing chamber is free again following an overload, the material transport is continued without delay.

This means that the plant is quickly back to full output, wear of the components is reduced and the overgrain percentage is minimised.

EFFECTIVE SCREENING – FOR LOW WEAR AND BEST FINAL PRODUCT QUALITY

On MOBIREX EVO2 plant systems, primary screening is carried out by an independently vibrating double-deck prescreen, which assures effective screening of the fine elements. The medium grain is channelled directly to the discharge chute via the crusher bypass. In this way, wear in the crushing chamber is reduced and the quality of the end product is increased.

The optional secondary screening unit makes it possible to screen a specific grain size. The large screen surface enables effective screening even with grain sizes below 30 mm. The discharge height is set to the maximum here for a large heap volume and an oversize grain return facilitates a closed material loop.

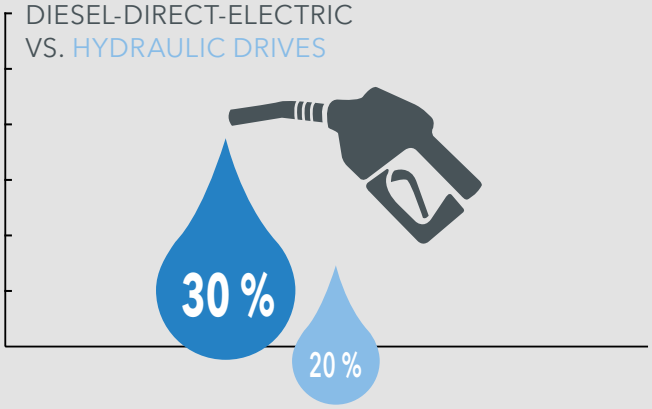
Independently vibrating double-deck prescreen

Vibrating screen with extra large screening area

THE DRIVE COMPARISON

INNOVATIVE CONCEPT – COST-EFFECTIVE AND RELIABLE

DIESEL-DIRECT-ELECTRIC
VS. HYDRAULIC DRIVES



> HIGH PERFORMANCE,
LESS CONSUMPTION

Up to 30% more cost-effective compared to hydraulic drives: the drive concept "diesel-direct-electric"

The MOBIREX EVO2 plant systems are distinguished by the innovative diesel-direct-electric drive concept. The direct drive of the crusher by means of fluid coupling is extremely efficient and powerful and impresses with very low consumption values.

The fluid coupling guarantees high operational reliability and protection for the machine. The onboard power generator is used to drive the prescreen as well as the chutes and conveyor belts. Speed setting is simple and fully automatic – adaptable to material and without setup times.

Daniel Speisser
Manager Customer Support Training

Flexibility meets power

The powerful performance and low consumption values of MOBIREX EVO2 plant systems are as impressive as the first class final product quality. They are agile and compact - with the highest productivity.

MOBILE IMPACT CRUSHER - MOBIREX QUARRY-LINE

THE CRUSHER FOR PARTICULARLY **TOUGH DEPLOYMENT SITUATIONS**

Powerful and flexible: diesel-electric drive concept with optional connection to external power source

Easy to operate, fast diagnosis in the event of an error: electrical system with integrated remote maintenance system and display with fault code display

YOUR ADVANTAGES AT A GLANCE

Robust. Powerful. Operationally safe.

The "Quarry-Line" plant systems are designed to deal with the tough conditions encountered during quarrying. Its diesel-electric drive concept works extremely efficiently and also enables operation of the plant systems via an external power source – for longer term deployment in soft to medium hard natural stone and processing residual construction materials.

> Use in natural stone and recycling

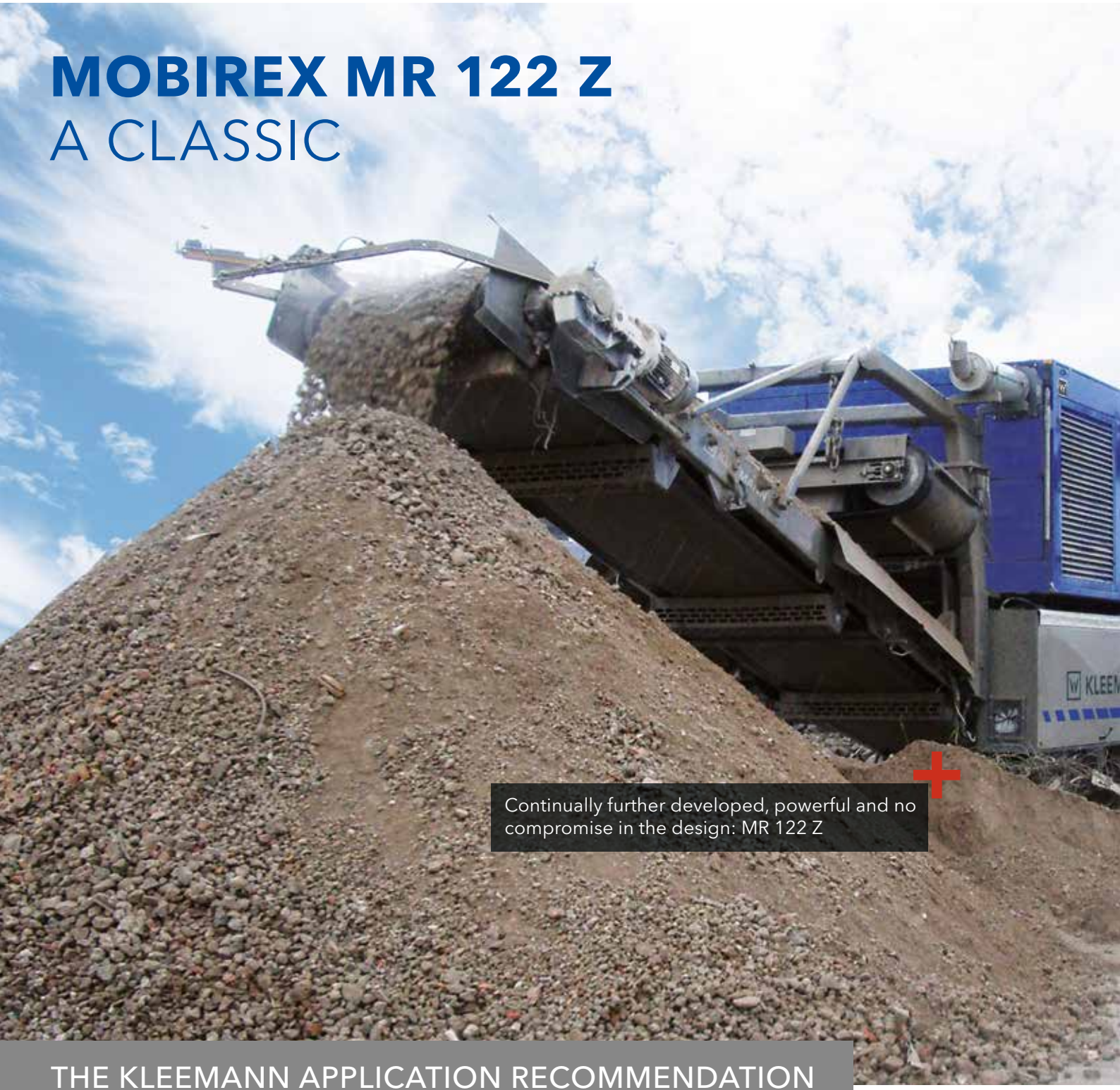
Sturdy, low maintenance, **high operational safety:** Impact crushers with two hydraulically-adjustable impact toggles with two-stage material reduction for optimum grain shape

Best final product quality thanks to **effective prescreening** of fine elements and contamination with an independently vibrating double-deck prescreen

Low wear, longer conveyor belt service life: Redirection and braking of crushed material by discharge chute and crusher discharge conveyor, large chute volume

Convenient conveying even by wheel loader: generous feeding unit

MOBIREX MR 122 Z
A CLASSIC



Continually further developed, powerful and no compromise in the design: MR 122 Z

THE KLEEMANN APPLICATION RECOMMENDATION

- Processing of soft stone, such as limestone, in the 1st crushing stage
- Processing of soft and medium hard stone in the 2nd crushing stage
- Processing of residual construction materials such as rubble
- For medium batch sizes

APPLICATION

Use in natural stone and recycling

The MR 122 Z is a classic among mobile impact crushers. The trusted professional for soft and medium hard natural stone as well as rubble and demolition material processing.

WELL EQUIPPED

Even in its basic version, the clearly structured plant system has everything that it needs. An active double-deck prescreen with slotted grate or perforated sheet, a crusher with two impact toggles and an discharge chute all come as standard with the MOBIREX MR 122 Z.

Special version MR 122 RR with wobbler feeder prescreening

As the "RR version" - i.e. equipped with a wobbler feeder instead of a prescreen - the MR 122 is predestined for use in binding material. Dirt and stones are separated in advance and the crusher unit is kept free of clogging and wear.

ROBUST CRUSHER

Sturdy impact crusher with 4 X-Shape rotor ledges

Technical information MR 122 Z	
Feed capacity up to approx.	475 t/h
Crusher inlet (W x H)	1,270 x 1,000 mm
Weight	65,000 kg
Engine/motor output	365 kW

MOBIREX MR 150 Z
THE STURDY PLANT FOR SPECIAL APPLICATIONS

Sturdy design and high flow rate: the MR 150 Z with double-deck prescreen.

THE KLEEMANN APPLICATION RECOMMENDATION

- Processing of soft stone, such as limestone, in the 1st crushing stage
- Processing of soft and medium hard stone in the 2nd crushing stage
- For large batch sizes

APPLICATION

Deployed in natural stone

The MOBIREX MR 150 Z is the largest mobile impact crusher that can be transported in one. With an especially sturdy design, the MR 150 Z is configured for effectiveness. With the effective prescreening, the powerful crusher unit achieves a feed capacity of up to 550 tonnes per hour thanks to the large double-deck prescreen.

COST EFFECTIVE SOLUTION

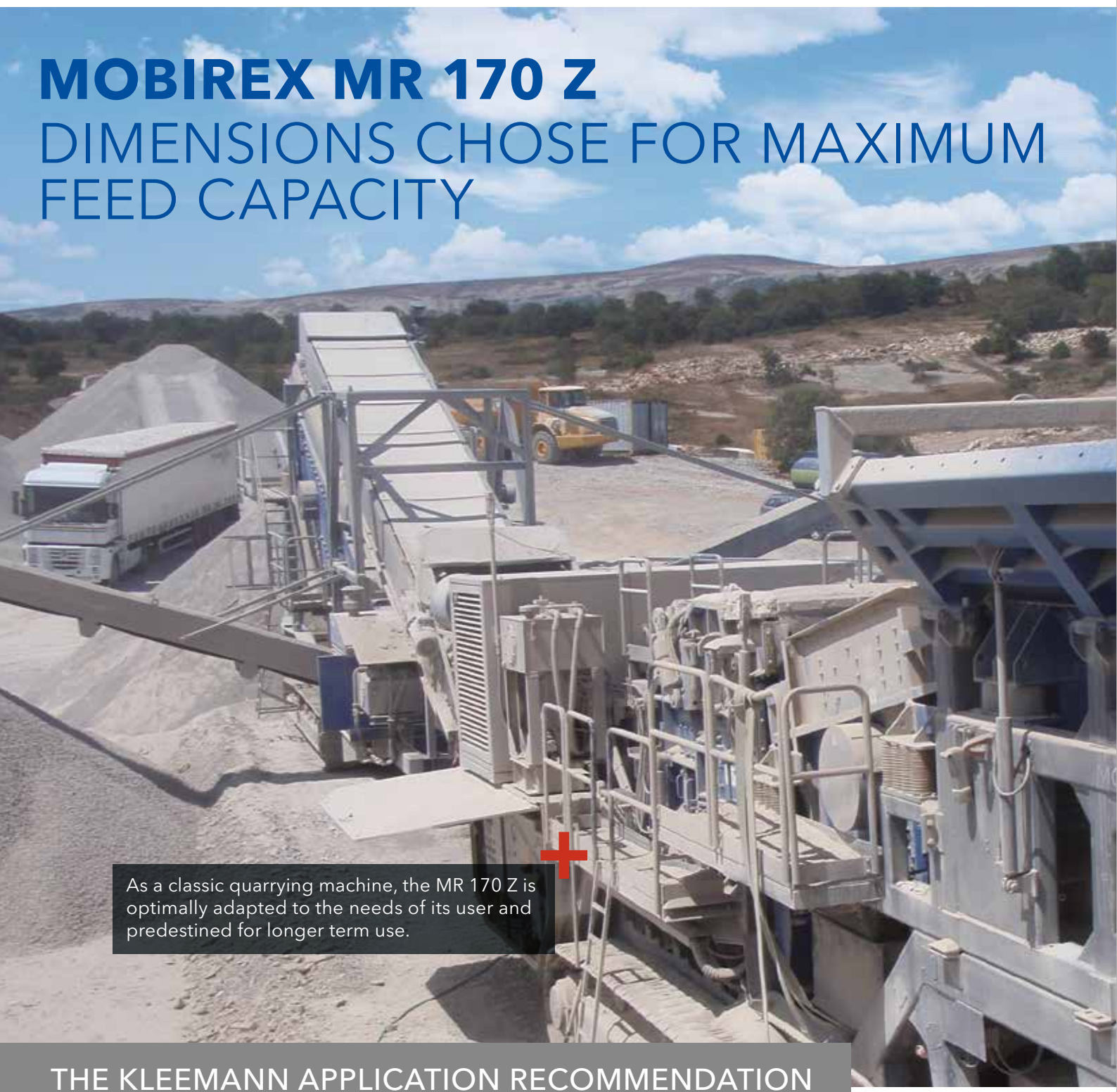
As with all plant systems of the Quarry-Line, the MR 150 Z can be supplied optionally via an external power source and autonomously via a diesel power supply unit.
In quarrying operations, above all, this has proven to be an extremely cost effective solution.

ROBUST CRUSHER

Sturdy impact crusher with 4 X-Shape rotor ledges

Technical information MR 150 Z	
Feed capacity up to approx.	550 t/h
Crusher inlet (W x H)	1,520 x 1,000 mm
Weight	75,000 kg
Engine/motor output	480 kW

MOBIREX MR 170 Z
DIMENSIONS CHOSE FOR MAXIMUM FEED CAPACITY



As a classic quarrying machine, the MR 170 Z is optimally adapted to the needs of its user and predestined for longer term use.

THE KLEEMANN APPLICATION RECOMMENDATION

- Processing of soft stone, such as limestone, in the 1st crushing stage
- Processing of soft and medium hard stone in the 2nd crushing stage
- For maximum batch sizes

APPLICATION

Deployed predominantly in natural stone

The largest mobile impact crusher system MOBIREX MR 170 Z from KLEEMANN is configured for maximum volume and longer term use. Feed sizes of up to 1,300 x 800 mm are possible. Despite the heavy weight of the plant of 93 tonnes, it can be easily relocated in the quarry. For road transport, the MOBIREX MR 170 is separated into two main components.

EFFECTIVE AND POWERFUL

Used predominantly for limestone, the plant is suitable both as a classic primary crusher with feed sizes of up to 1,300 mm or in the case of reduced feed sizes for crushing down to the final grain.

Another bonus of the plant is the effective prescreening with 3.5 m long double-deck heavy-piece screen.

ROBUST CRUSHER

Sturdy impact crusher with 4 X-Shape rotor ledges

Technical information MR 170 Z	
Feed capacity up to approx.	700 t/h
Crusher inlet (W x H)	1,660 x 1,000 mm
Weight	93,000 kg
Engine/motor output	480 kW

OPTIMUM CRUSHING RESULTS OWING TO THE CORRECT FRAME-WORK CONDITIONS

An optimum crushing result can only be achieved with perfectly adapted plant components – and the right settings at the operator's discretion in each case. With these tips, it is possible to find the ideal settings for any task.

Feed material

- Feed size: The maximum feed size should not exceed 80% of the specified crusher opening
- Compressive strength: Mineral materials up to a maximum compressive strength of 100 MPa in the 1st crushing stage, 150 MPa in the 2nd crushing stage can be used
- Mineral type: Impact crushers of the SHB-series process soft to medium hard natural stone such as limestone, dolomite or sandstone as well as residual construction materials like rubble, bricks, asphalt and concrete

Crushing ratio

The maximum crushing ratio (ratio of feed grain size / grain output) largely depends on the physical properties of the feed material. The following crushing ratio guidelines apply:

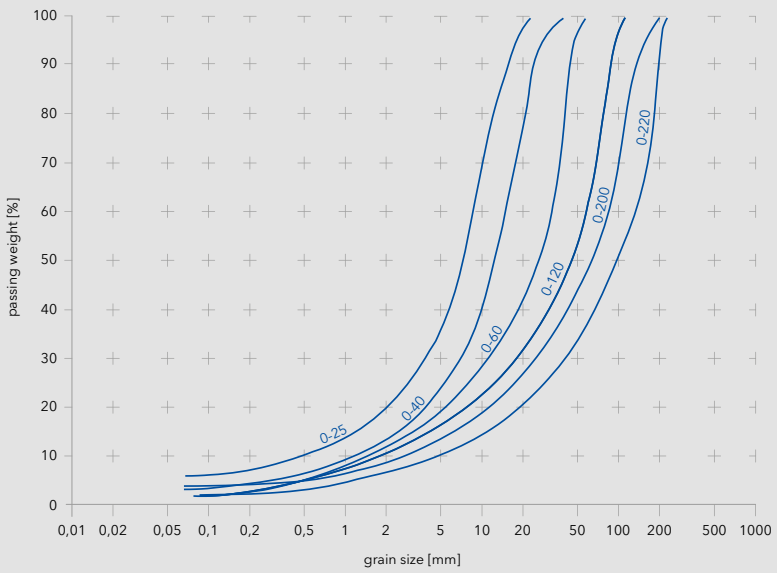
- Limestone, rubble and asphalt up to approx. 10:1
- Reinforced concrete 10:1 to 15:1, depending on concrete grade
- Material such as limestone, rubble, bricks, concrete of lower quality or production in a closed loop (with downstream classifying screen and oversize grain returning) 20:1 and higher

Rotor speed and crushing gap

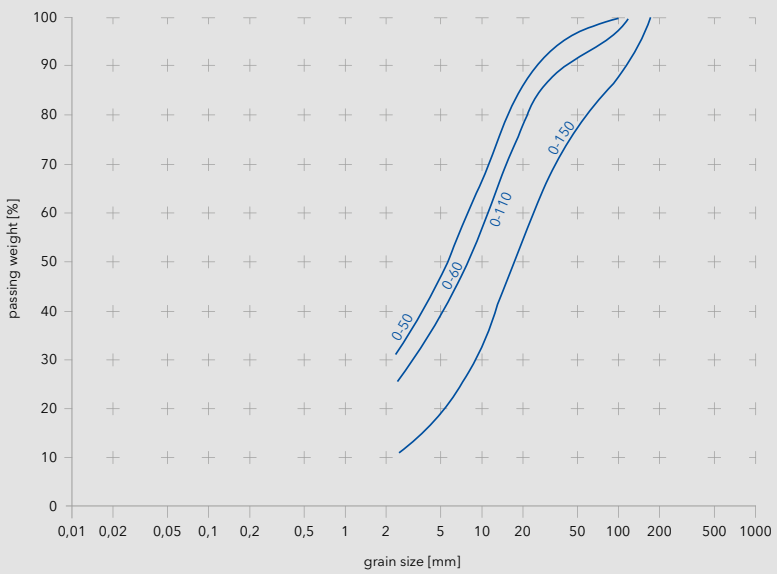
If the rotor speed increases, the crushing curve moves to the left, which signifies an increase in the proportion of fine elements in the end product. With the use of a grinding path (optional), the proportion of fine elements increases further. In this case, the feed size must be limited to 250 mm. The MOBIREX is used here solely as a secondary crusher.

In principle, an increase in rotor speed and/or a reduction of the crushing gap leads to increased wear and a reduction in the flow rate of the crushed material.

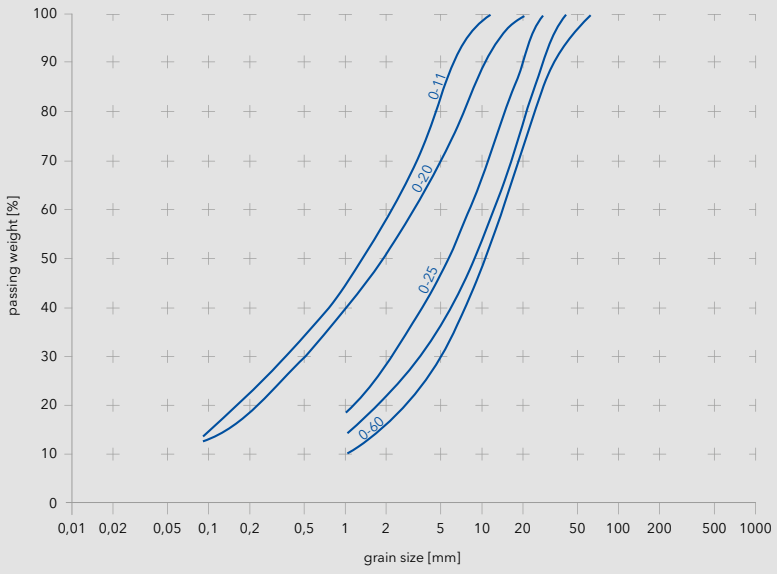
CRUSHING CURVE MOBIREX – LIMESTONE



CRUSHER CURVE MOBIREX – RUBBLE



CRUSHER CURVE MOBIREX – ASPHALT



THE KLEEMANN SERVICE PROGRAM:

CUSTOMER SERVICE AT KLEEMANN

Customer service at KLEEMANN means: reduced downtimes, minimum wear costs, maximum customer proximity.

A wide range of training courses as a basis for optimal use of our plants. A dense network with experienced service technicians. Quickly available original spare parts. All of this is guaranteed by our comprehensive support organisation. Worldwide, day after day.

The KLEEMANN service program:

- Professional maintenance and repair of your machines and plants
- Preventive maintenance through service contracts
- Ordering of original parts – the correct wear part for your application, reduction in wear part and operating costs
- Application advice and training

SERVICE NETWORK

Our local contact partners provide you with comprehensive support for all tasks and questions related to our products. Quick technical support is our main priority. We ensure short response times and quick solutions through a close network of subsidiaries, their experienced service technicians and the additional support provided by our support organisation in the parent plant.

TRAINING COURSES

An essential element of the successful use of our plants is corresponding knowledge of their operation. In order to communicate the necessary technical knowledge to your employees, KLEEMANN offers a wide range of training courses, which can be carried out in the CTT (Centre for Training and Technology) in Göppingen or on site.

PARTS AND ACCESSORIES

Original parts and accessories from KLEEMANN can assure the high reliability and availability of the machines in the long term. Rapid identification of the correct part is possible using WIDOS – the WIRTGEN GROUP documentation system. An overview of all spare parts with simple ordering information is available under www.partsandmore.net

Further information: service@kleemann.info

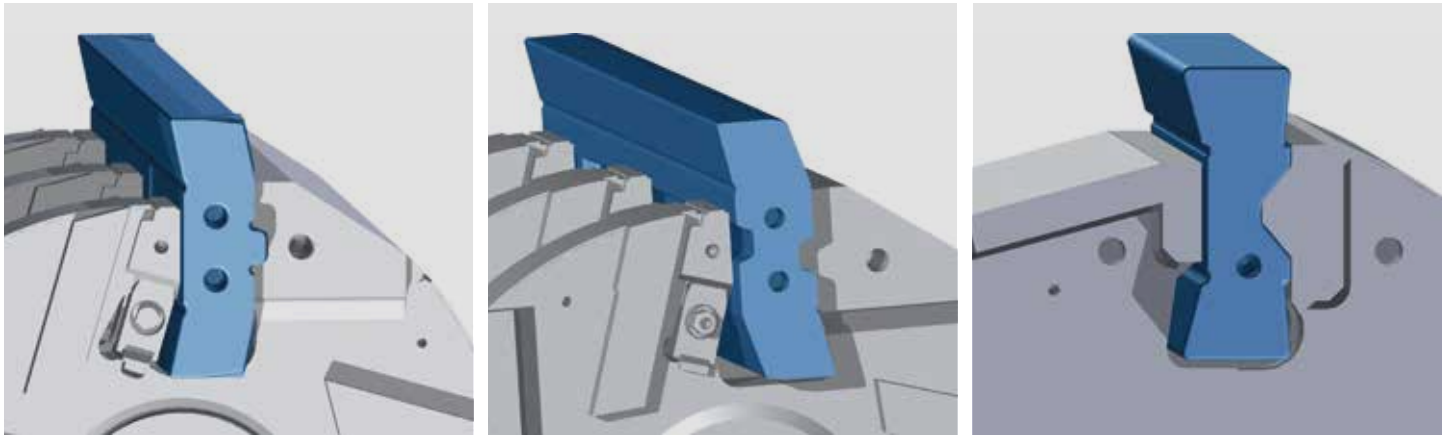
CRUSHING TECHNOLOGY – THE RIGHT WEAR PARTS FOR OPTIMUM RESULTS

Optimum crushing result from any kind of deployment
The areas in which a KLEEMANN impact crusher can be deployed are diverse and range from classic natural stone processing to the recycling of residual construction materials and further to mining applications.

The focus here is essentially on two tasks: Increasing the service life of the wear parts and, at the same time, reducing operating costs

Impact crusher wear parts

1 Wear plates
2 Impact toggles
3 Rotor ledges
4 Impact plates
5 Support beams
6 Rubber curtain
7 Chain curtain
8 Rotor



C-shape, S-shape, X-shape

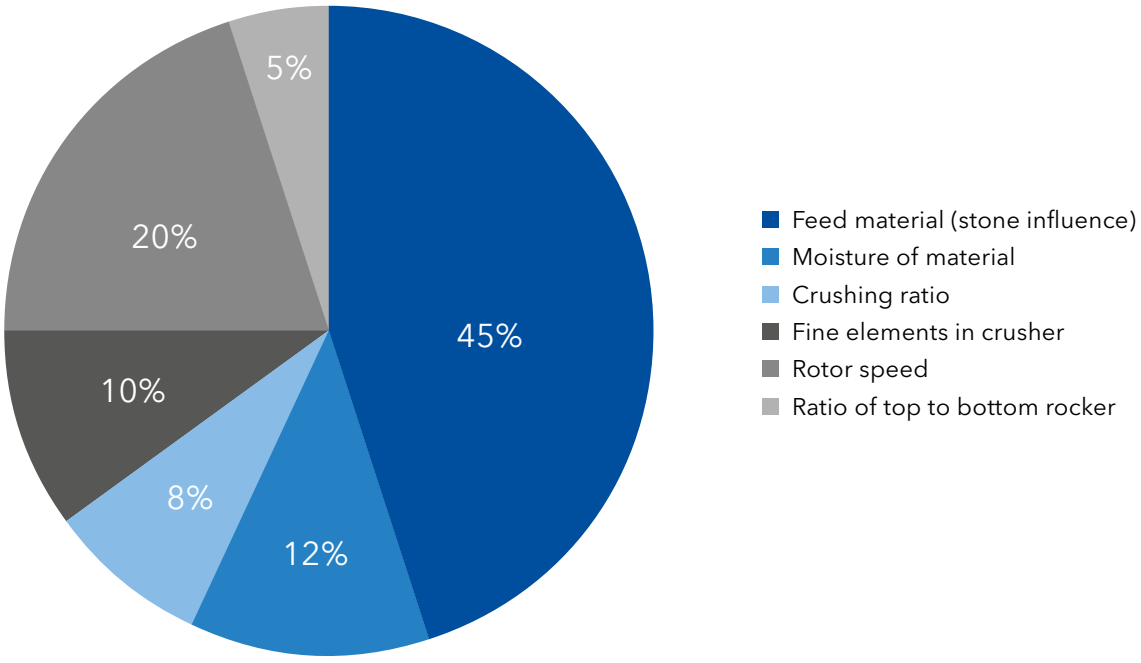
It's down to the material

Depending on the machine series, different shapes of rotor ledge have to be used. KLEEMANN offers three different shapes: X-shape, S-shape and C-shape.
All three shapes are available in a variety of materials.

For ideal results, the shape as well as the material of the rotor ledges should be adapted to the crushing task.

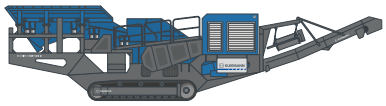
Impact crusher wear – influencing factors

To assess the durability of a rotor ledge, not only the rotor ledge material but also other influencing factors have to be taken account of, which interact differently with each other in each case. Generally, the different influencing factors can be split into six categories.



Further information: www.partsandmore.net

	EVO-LINE	
	MR 110 Z EVO2	MR 130 Z EVO2
		
Feed size up to max. (depending on material)	900 x 880 mm	1,100 x 700 mm
Crusher inlet width x height	1,100 x 800 mm	1,300 x 900 mm
Feed capacity up to approx.	350 t/h	450 t/h
Weight approx.	43,900 kg	48,500 kg
Drive concept	Diesel-direct-electric	
Features	Mountable side discharge conveyors (optional)	
	Simple control, menu-guided touch panel	
	Feeding control Continuous Feed System (optional)	
	Fully automatic crushing gap adjustment	
	Rotor with 3 rotor ledges (opt. 4 rotor ledges)	Rotor with 4 rotor ledges
	Magnetic separator (optional)	
	Independent double-deck prescreen	
	Secondary screening unit with return conveyor (optional)	
Application spectrum	Natural stone Recycling	Natural stone Recycling

QUARRY-LINE		
MR 122 Z	MR 150 Z	MR 170 Z
		
1,000 x 800 mm	1,200 x 800 mm	1,300 x 800 mm
1,270 x 1,000 mm	1,520 x 1,000 mm	1,660 x 1,000 mm
475 t/h	550 t/h	700 t/h
65,000 kg	75,000 kg	93,000 kg
Diesel-electric, connection to external power supply (optional)		
Mountable side discharge conveyors (optional)		
Electrical control with plain text display		
Crusher fill level monitoring		
Hydraulically assisted crusher gap adjustment		
Rotor with 4 rotor ledges		
Magnetic separator (optional)		
Independent double-deck prescreen		
Natural stone Recycling	Natural stone	Natural stone

KLEEMANN

KLEEMANN GmbH
Germany

Manfred-Wörner-Str. 160
73037 Göppingen

Phone: +49 7161 206-0
E-Mail: info@kleemann.info

www.kleemann.info