



HAZEMAG

MINERALS





RANGE OF PRODUCTS

HAZEMAG

GROUP

HAZEMAG

MINERALS









Crushing

PRIMARY IMPACTORS	**HPI**	2
COMPOUND CRUSHERS	**HPC**	3
SECONDARY IMPACTORS	**HSI**	4
TERTIARY IMPACTORS	**HTI**	5
HAMMER CRUSHERS	**HDS**	6
CENTER SIZERS	**HCS**	7
SIDE SIZERS	**HSS**	8
ROLL CRUSHERS	**HRC**	9
PRIMARY HORIZONTAL IMPACT CRUSHERS	**HHI**	10
HORIZONTAL SHEARERS	**HHS**	11

Grinding

ROLLER MILLS	**HRM**	9
HAMMER MILLS	**HUM**	12
HAMMER MILLS	**HUV**	13
HAMMER MILLS	**HNM**	14

Drying | Grinding

HAMMER MILLS	**HUM / HNM**	15
RAPID DRYERS	**HRD**	16

Screening | Conveying

APRON FEEDERS / CONVEYORS	**HAF**	17
CHAIN CONVEYORS	**HHC**	18
PUSH FEEDERS	**HPF**	19
WOBBLER FEEDERS	**HRS**	20
WOBBLER FEEDERS | VARIOWOBBLER®	**HVW**	21
PENDULUM FLAP GATES	**HPV**	22
ROTARY GATE VALVES	**HGV**	23

Plants

CRUSHING PLANTS FOR THE CEMENT AND AGGREGATE INDUSTRIES	24
RUBBLE RECYCLING PLANTS	25



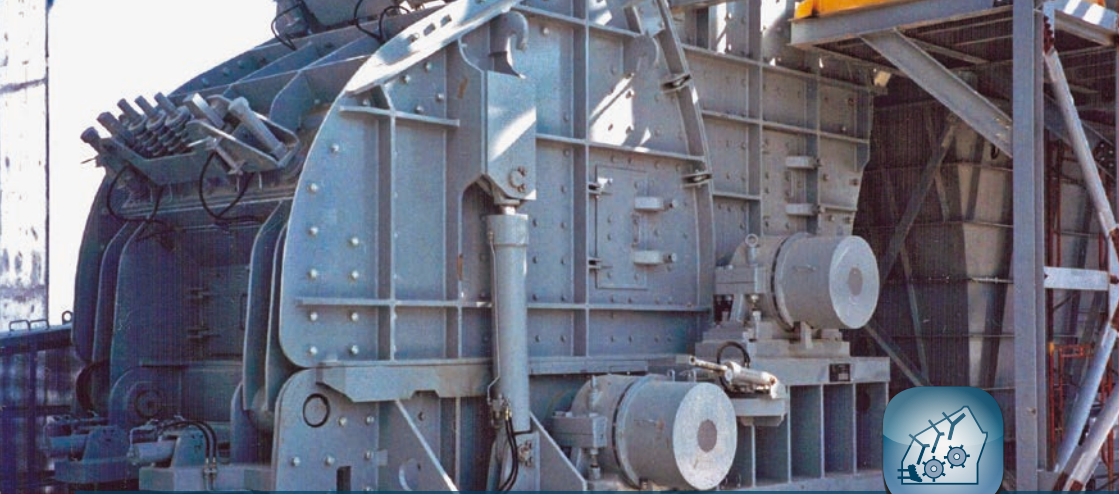
PRIMARY IMPACTORS | HPI

CRUSHING
of medium - hard rock and building rubble recycling

- Very high degree of crushing of large rocks at high throughput rates.
- Generation of a product suitable for feeding vertical roller mills.
- Choice of hydraulically - actuated impact aprons or HAZtronic electronic control system.
- Also available with heated impact aprons for wet and sticky feed materials

MATERIALS
Medium - hard rock, such as limestone, dolomite, phosphate, etc.
CAPACITY
450 – 2,250 t/h

FEED SIZE
1.3 – 3.0 m^3
PRODUCT
95 % < 150 mm *(without grinding path)* 95 % < 80 mm *(with grinding path)*



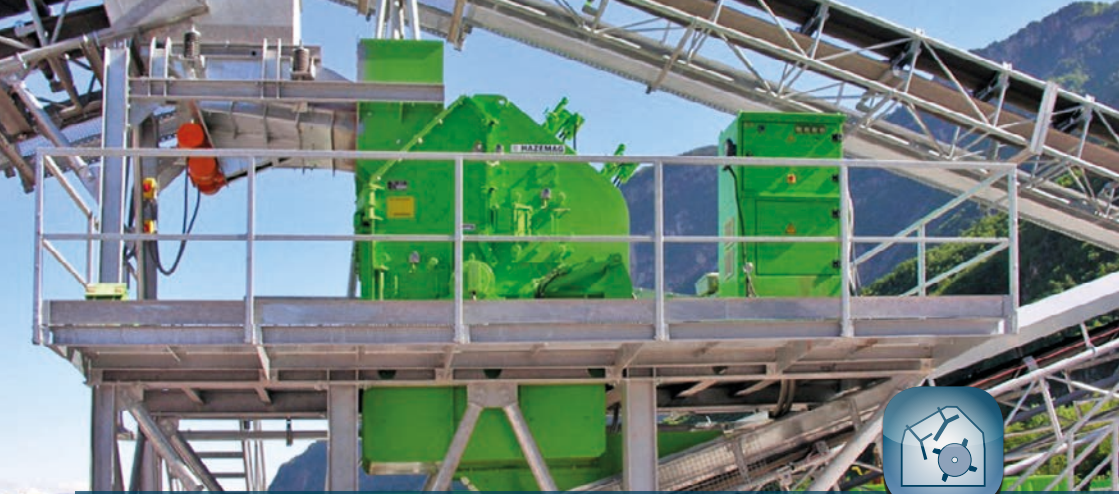
COMPOUND CRUSHERS | HPC

CRUSHING
of medium - hard rock, mainly for the cement industry

- Double - rotor impact crusher. Generation of a product suitable for feeding to ball mills.
- Combination of primary and secondary crushing in one machine, resulting in an extremely high degree of crushing of large rocks at high throughput rates.
- Also available with heated impact aprons for wet and sticky feed materials.

MATERIALS
Medium - hard rock, such as limestone, dolomite, etc.
CAPACITY
230 – 1,650 t/h

FEED SIZE
0.5 – 2.4 m^3
PRODUCT
92% < 25 mm



SECONDARY IMPACTORS | HSI

CRUSHING of medium - hard rock

for production of ballast, chippings and concrete aggregate, as well as for processing highly - abrasive materials to generate an appropriate cubical, stress- and crack - free product

- Optimum crushing chamber configuration, high capacity, high crushing efficiency, reduced wear rates.
- Ease of operation and a consistent product standard thanks to hydraulically-actuated impact aprons.
- HAZtronic electronic control system for production selection of computerstored recipes according to requirements *(optional)*.
- Also special designs, for instance, for the salt industry.

MATERIALS
Medium - hard rock to hard rock, such as limestone, gypsum, salt, dolomite, gravel, granite, basalt, glass etc.
CAPACITY
700 t/h

FEED SIZE
280 / 450 mm
PRODUCT
95 % < 35 mm



TERTIARY IMPACTORS | HTI

IMPACTORS for chippings and mechanical sand

- Granulometry range: coarse and fine chippings, mechanical sand with one machine only.
- Reversible rotor.
- Hydraulically adjustable impact apron and grinding path.
- HAZtronic electronic control system for production selection of computerstored recipes according to requirements (optional).
- Large maintenance doors.

MATERIALS
Medium - hard rock to hard rock, such as limestone, gypsum, salt, dolomite, gravel, granite, basalt, glass etc.
CAPACITY
60 - 160 t/h

FEED SIZE
max. 150 mm
PRODUCT
75 % < 4 mm 95 % < 25 mm



Double-Shaft **HAMMER CRUSHERS | HDS**

PRIMARY CRUSHING
of soft to medium-hard rock

- Very high crushing ratio, the product is ideal as feed material to ball mills and vertical roller mills.
- Able to process materials with an H_2O content of 10–15 % without requirement for additional equipment.

MATERIALS
Soft to medium-hard rock, such as limestone, gypsum, marl, clay, chalk etc.
FEED SIZE
max. 1,600 mm

CAPACITY | PRODUCT
280 - 2,150 t/h | 95 % < 90 mm 180 - 1,550 t/h | 95 % < 25 mm



CENTER SIZERS | HCS

SMOOTH CRUSHING
of soft to medium-hard material with a low percentage of fines

The HAZEMAG-Sizer HCS is used as a primary, secondary or tertiary crusher for soft to medium-hard raw materials. It has also proved optimal in the comminution of cohesive materials with high moisture content.

Following materials can be crushed with HAZEMAG-Sizers: Limestone, clay, flint clay, gypsum, coal, coke, phosphate, marl, oil shale, chalk, salts, overburden material, quicklime, gas-aerated concrete bricks, fertiliser...

The comminution of the feed material is generally realized by compression and shearing induced by two fixed crushing rolls at low speed with high torque. For the Center Sizer the crushing takes place between the two inward rotating crushing rolls.

A high degree of safety and minimum maintenance requirement.

MATERIALS
Limestone, clay, coal, coke, gypsum, tone, phosphate, oil shale, chalkstone, salt, marl, porous concrete...
CAPACITY
up to 5,000 t/h

FEED SIZE
max. 1,500 mm
PRODUCT
0 – 40 mm 0 – 400 mm acc. to requirements



SIDE SIZERS | HSS

SMOOTH CRUSHING
of soft to medium-hard material with a low percentage of fines

The HAZEMAG-Sizer HSS is used as a secondary or tertiary crusher for soft to medium-hard raw materials. It has also proved optimal in the comminution of cohesive materials with high moisture content.

Following materials can be crushed with HAZEMAG-Sizers: Limestone, clay, flint clay, gypsum, coal, coke, phosphate, marl, oil shale, chalk, salts, overburden material, quicklime, gas-aerated concrete bricks, fertiliser...

The comminution of the feed material is generally realized by compression and shearing induced by two fixed crushing rolls at low speed with high torque. For the Side Sizer the crushing takes place between the outward rotating two crushing rolls and the associated crushing wall / comb.

A high degree of safety and minimum maintenance requirement.

MATERIALS
Limestone, coal, coke, phosphate, salt, alluvium anodes...
CAPACITY
up to 4,000 t/h

FEED SIZE
max. 500
PRODUCT
0 – 20 mm 0 – 100 mm acc. to requirements



ROLLCRUSHERS/ROLLERMILLS|HRC/HRM

SMOOTH CRUSHING
of soft to medium-hard material with a low percentage of fines

- HAZEMAG roll crushers and mills are ideally suited to the smooth crushing of soft- to medium-hard materials with a low percentage of fines in the product.
- They have also proved their effectiveness in the crushing of cohesive materials with a high moisture content.
- Hydraulically-controlled floating roll.
- A high degree of safety and minmum maintenance requirement.
- Hydraulic support of the floating roll, which ensures the retraction of the floating roll in case of overload or feeding of unbreakable pieces.

MATERIALS
Soft to medium-hard rock, such as overburden, limestone, clay, shale, coal, coke, gypsum, phosphate, marl, chalk...
CAPACITY
up to 5,000 t/h

FEED SIZE
max. 1,500 mm
PRODUCT HRC
0 – 15 mm 0 – 400 mm acc. to requirements
PRODUCT HRM
0 – 5 mm 0 – 15 mm acc. to requirements



Primary horizontal **IMPACT CRUSHERS | HHI**

CRUSHING of medium - hard rock

for Aggregates, Coal, Lignite and Recycling. In tunnelling applications as well used in hard rock environments.

- Ready to use **complete crushing plant** as combination of single Impact Roll Crusher with an integrated Heavy Duty Chain Conveyor. Equipped with re-adjustable impact elements and easily exchangeable wear parts.
- Accepts oversized feed material.
- Especially suitable for sticky clayish materials. Feeding at grade, no foundation required.
- Different grades of mobility: stationary, semi-mobile, mobile on powered or non - powered tracks.
- Manless operation through PLC.

MATERIALS
Soft to medium - hard rock, such as Limestone, gypsum, coal, hard-rock in tunnels
CAPACITY
300 - 3,000 t/h

FEED SIZE
800 – 2,300 mm x any length *(due to horizontal flow of material)*
PRODUCT
0 – 250 / 300 mm



HORIZONTAL SHEARERS | HHS

CRUSHING of medium-hard rock, mainly for Coal, Lignite, Potash and Rock salt.

- Ready to use **complete crushing plant** as combination of single Roll Crusher with an integrated Heavy Duty Chain Conveyor. Crushing Roll to be equipped with different types of bits according to material and crushing size.
- No foundation required.
- Also available with shaped flight bars to act as a primary crusher with product sizes of < 50 mm.
- Reduced fines production through optional integrated wobbler feeder type HRS.
- Compact and low design especially for underground applications.

MATERIALS
Soft to medium-hard rock, such as coal, lignite, gypsum, chalk, potash and rock salt
CAPACITY
180 - 2,000 t/h

FEED SIZE
0.7 – 2.8 m^3
PRODUCT
0 – 50 / 200 mm



HAMMER MILLS | HUM

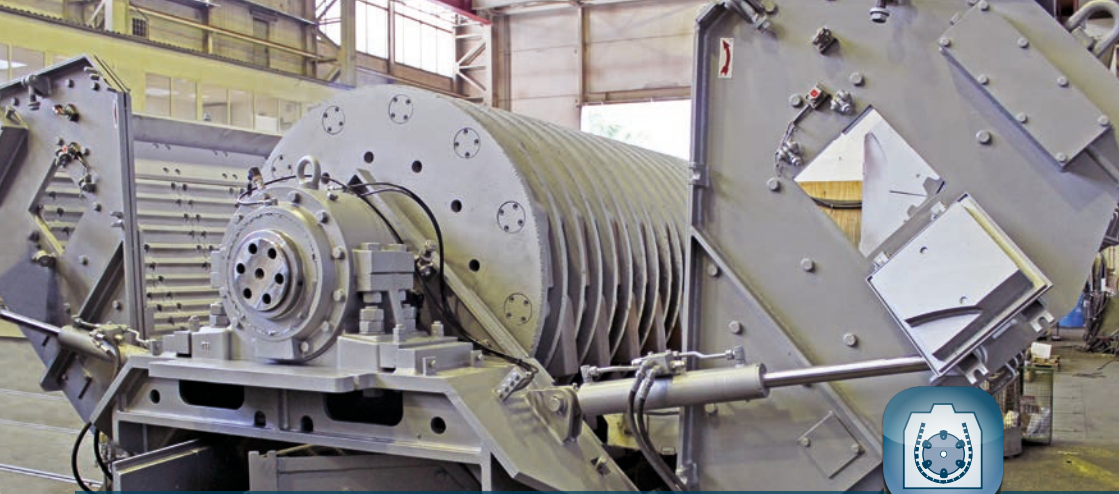
FINE GRINDING
of soft to medium-hard materials and recycling products

The rotational direction of the rotor of the compact Hammer Mill Type HUM is reversible, thus allowing wear parts to be fully used.

An additional option is ground material drying. In addition to fine grinding, the material is simultaneously dried in a single work process.

MATERIALS
Soft to medium-hard rock, such as limestone, fertilizer, lignite, dolomite, salt, glass, electronic scrap
CAPACITY
up to 120 t/h

FEED SIZE
max. 250 mm
PRODUCT
0 – 1.4 mm *0 – 4 mm* *0 – 10 mm* *acc. to requirements*



HAMMER MILLS | HUV

GRINDING
of soft to medium - hard materials

- Various equipment possibilities are available for the HUV Hammer Mils:
- Adjustable grinding path
- Adjustable heating of grinding path for sticky materials
- Grating for particle limitation.

MATERIALS
Soft to medium-hard rock, such as limestone, lignite, coal, gypsum, dolomite, oil shale, salt
CAPACITY
up to 2,000 t/h

FEED SIZE
max. 300 mm
PRODUCT
0 – 2 mm 0 – 4 mm 0 – 10 mm 0 – 25 mm 0 – 50 mm acc. to requirements



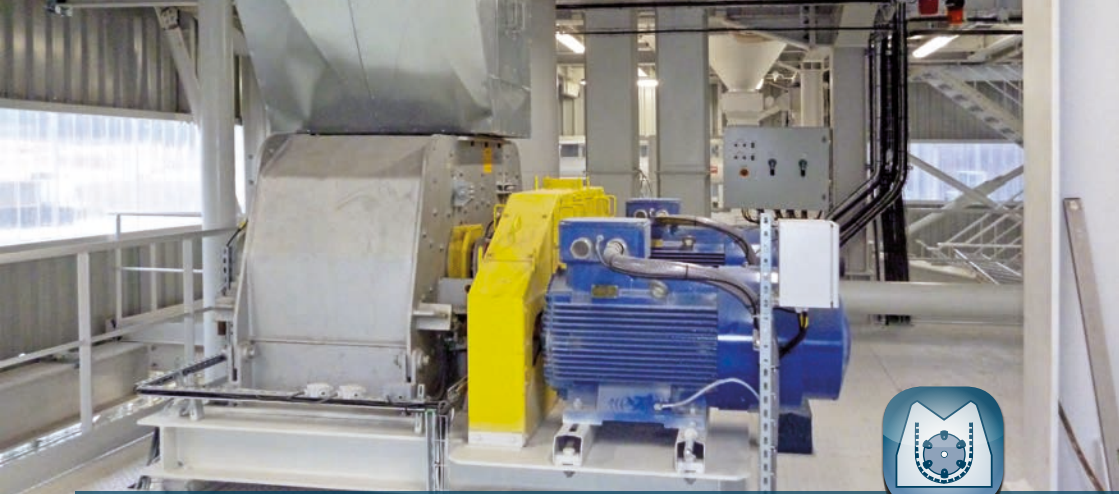
HAMMER MILLS | HNM

FINE GRINDING
of soft to medium-hard materials and recycling products

- The two rotors of the HNM Hammer Mill achieve a high capacity with a minimal machine width.
- Grinding and drying is an additional option. In addition to fine grinding, the material is simultaneously dried in a single work process.

MATERIALS
Soft to medium-hard rock, such as limestone, fertilizer, lignite, dolomite, salt, glass, electronic scrap
CAPACITY
up to 250 t/h

FEED SIZE
max. 250 mm
PRODUCT
0 – 1.4 mm 0 – 4 mm 0 – 10 mm acc. to requirements



HAMMER MILLS | HUM / HNM

SIMULTANEOUS DRYING AND FINE GRINDING of soft to medium-hard materials

- Wide range of machine designs and operating variations for optimum alignment to specific requirements.
- Single- or double-rotor designs.
- Drying medium: hot gas, usually the flue gases from an oil- or gas-fired hot gas generator.

MATERIALS
Soft to medium-hard rock, such as limestone, gypsum, dolomite, clay, kaolin, lignite etc.
CAPACITY
up to 250 t/h

FEED SIZE
max. 250 mm
PRODUCT
0 – 2 mm 0 – 4 mm 0 – 10 mm acc. to requirements



RAPID DRYERS | HRD

AN AGITATOR SHAFT DRYER
which can handle many different materials

- Convection dryer utilizing hot gas as drying medium in parallel current flow, with minimum material residence time and high heat efficiency. Creation of large material surfaces, de-agglomeration of the material through mechanical agitation by the shafts and the simultaneous effect of the heat from the circulating hot gases, resulting in an extremely intensive heat exchange between gas and wet material.
- Compact, rugged design.
- Drying medium: hot gas, usually the flue gases from an oil- or gas-fired hot gas generator.

MATERIALS
Clay, flue gas gypsum, chemical gypsum, chalk, fly ash, fluorite, bentonite, trass, puzzolana, filter cake *(from filter presses, belt filters, centrifuges, etc.)* of different types

HOT GAS TEMPERATURE
up to 800 ° C
WATER VAPORISATION
max. 27,000 kg / h



APRON FEEDERS / CONVEYORS | HAF

For MATERIAL EXTRACTION from feed hoppers and material conveyance, ideally at an incline.

- Conveying surface comprising steel pans attached by bolts to two tractor chains running on heavy-duty rollers.
- A tight seal is created between the pans by overlapping and by precision machining.
- Variable-speed drive either by hydraulics or by planetary gear and frequency-controlled electric motor.
- Collection and removal of spillage material is effected by scraper chain conveyor directly flanged to the underside of the apron conveyor.

MATERIALS
Quarried rock, ores
CAPACITY
up to 10,000 t/h

FEED SIZE
0.7 – 2.8 m^3
INCLINE
23 °



CHAIN CONVEYORS | HHC

HEAVY AND LIGHT DUTY CHAIN CONVEYORS

- Feeding or Extraction equipment for feed hoppers, bunkers and so called natural bunkers *(dozer traps).*
- Horizontal or inclined conveyance of low-abrasive but sticky materials.
- To be fed by shovel, loader, dozer or dump truck up to 300 t per dump.
- Two or more round-link chains joined by scraper flights which are drawn over a rigid conveying surface in the upper strand.
- Drive by means of spur gear and frequency-controlled electric motors.
- Single or double drive frames.
- Monitoring of chain tensioning, chain and flight bar breakage.
- Pre-screening with integrated wobbler feeder type HRS possible.

MATERIALS
Medium-hard rock, such as limestone, gypsum, coal, lignite, potash, rock salt
CAPACITY
up to 4,000 t/h

FEED SIZE
0.7 – 3.5 m^3
INCLINE
0 - 18 °
CONVEYOR LENGTH
up to 60 m and more



PUSH FEEDERS | HPF

For MATERIAL EXTRACTION from a feed hopper and material conveyance, horizontal installation.

- Conveyance on a conveying trough which is movably mounted on rollers and actuated back and forth by hydraulic cylinders.
- Infinitely variable conveying rate regulation by varying stroke length and speed.

MATERIALS
Quarried rock

CAPACITY
400 - 1,400 t/h

FEED SIZE
0.7 - 2.8 m^3



WOBBLER FEEDERS | HRS

For SEPARATING FINES from the feed material

- Screening surface comprises rotating shafts, through the gap spaces of which the fines can pass, allowing the conveyance of the coarse material to continue.
- Also available with adjustable gap spacing for varying separation points. *(see VARIOwobbler® HVW)*

MATERIALS	FEED SIZE
Limestone, marl, clay, coal, hard rock, ores	up to 1,700 mm
CAPACITY	**SEPARATION GRANULOMETRY**
up to 2,500 t/h	15 - 120 mm



WOBBLER FEEDERS | VARIOwobbler® | HVW

For SEPARATING FINES from the feed material with adjustable gap spacing

- Screening surface comprises rotating shafts, through the gap spaces of which the fines can pass, allowing the conveyance of the coarse material to continue.
- Gap adjustment by hydraulic system.
- Single-shaft drive.
- Perfect adjustment to differing weather conditions, raw material consistencies and the degree of separation required.

MATERIALS
Limestone, marl, clay, coal, hard rock, ores
CAPACITY
up to 2,500 t/h

FEED SIZE
up to 1,700 mm
SEPARATION GRANULOMETRY
15 - 120 mm



PENDULUM FLAP GATES | HPV

FEED AND DISCHARGE DEVICES for processes operating at just under negative pressure, such as dryers, filters, classifiers, hammer mills, etc.

- Mode of operation: more or less continuous, i.e. approx. 15 – 25 cycles / minute

Designs available:

- Double pendulum flap gate
- mechanically actuated
- hydraulically actuated
- Triple pendulum flap gate
- hydraulically actuated

MATERIALS
Fly ash, anode residue, coke, graphite, blast furnace slag, puzzolana, chalk, trass, anhydrite, clay, filter dust, dolomite, marl, cement, gypsum, etc.
CAPACITY
up to approx. 500 m^3/h



ROTARY GATE VALVES | HGV

CONTINUOUSLY-OPERATING FEED AND DISCHARGE DEVICES for processes operating at just under negative pressure, such as dryers, filters, classifiers, hammer mills, etc.

Designs available:

- Rotary gate valve with offset inlet and outlet flange
- Rotary gate valve with offset inlet and outlet flange plus retracting shield

Advantages:

- reduced housing wear
- almost total avoidance of jamming caused by oversized material
- the design with retracting shield allows the passage through the gate valve of individual lumps of up to 300 mm *(depending on type)*

MATERIALS
Anhydrite, clay, filter dust, dolomite, marl, cement, gypsum, etc.
CAPACITY
up to approx. 500 m^3/h



CRUSHING PLANTS

For the CEMENT and AGGREGATE INDUSTRIES
MOBILE | SEMI-MOBILE OR STATIONARY PLANTS

- Simultaneous crushing of different raw material components.
- Use of impact crushers, hammer crushers, roll crushers, sizers, impact roll crushers.
- Generation of a product ideal as feed material for vertical roller mills and ball mills.
- Consistently high product quality.
- Reduction on crusher load through pre-screening by wobbler feeders HRS.
- Apron conveyors with variable speed drives.

MATERIALS
Medium-hard rock, such as limestone, marl, gypsum, clay, puzzolana, dolomite, phosphate, etc.
CAPACITY
up to 2,500 t/h

FEED SIZE
up to 2.8 m^3
PRODUCT
95 % < 250 mm 95 % < 150 mm 95 % < 80 mm 92 % < 25 mm acc. to requirements



RUBBLE RECYCLING PLANTS

MOBILE | SEMI-MOBILE OR STATIONARY PLANTS

- Pre-Screening of fines and soil.
- High degree of operational safety with a consistent product quality from an impact crusher with active hydraulics.
- A minimum percentage of oversize.
- Reliable separation of re-bar.
- Trouble-free discharge of re-bar through conveyance in the direction of rotor rotation.
- Cleaning and classification by screening and sifting plants.
- Generation of high-quality recycling material.

MATERIALS	FEED SIZE
Building rubble, concrete, broken road paving, asphalt, etc.	0.3 - 1.5 m^3
CAPACITY	**PRODUCT**
100 - 1,000 t/h	95 % < 45 mm

HAZEMAG

MINERALS

HAZEMAG & EPR GmbH
Brokweg 75
48249 Dülmen
Germany

+49 25 94 77 - 0
+49 25 94 77 - 40 0

info@hazemag.de
www.hazemag-group.com

HAZEMAG
GROUP