

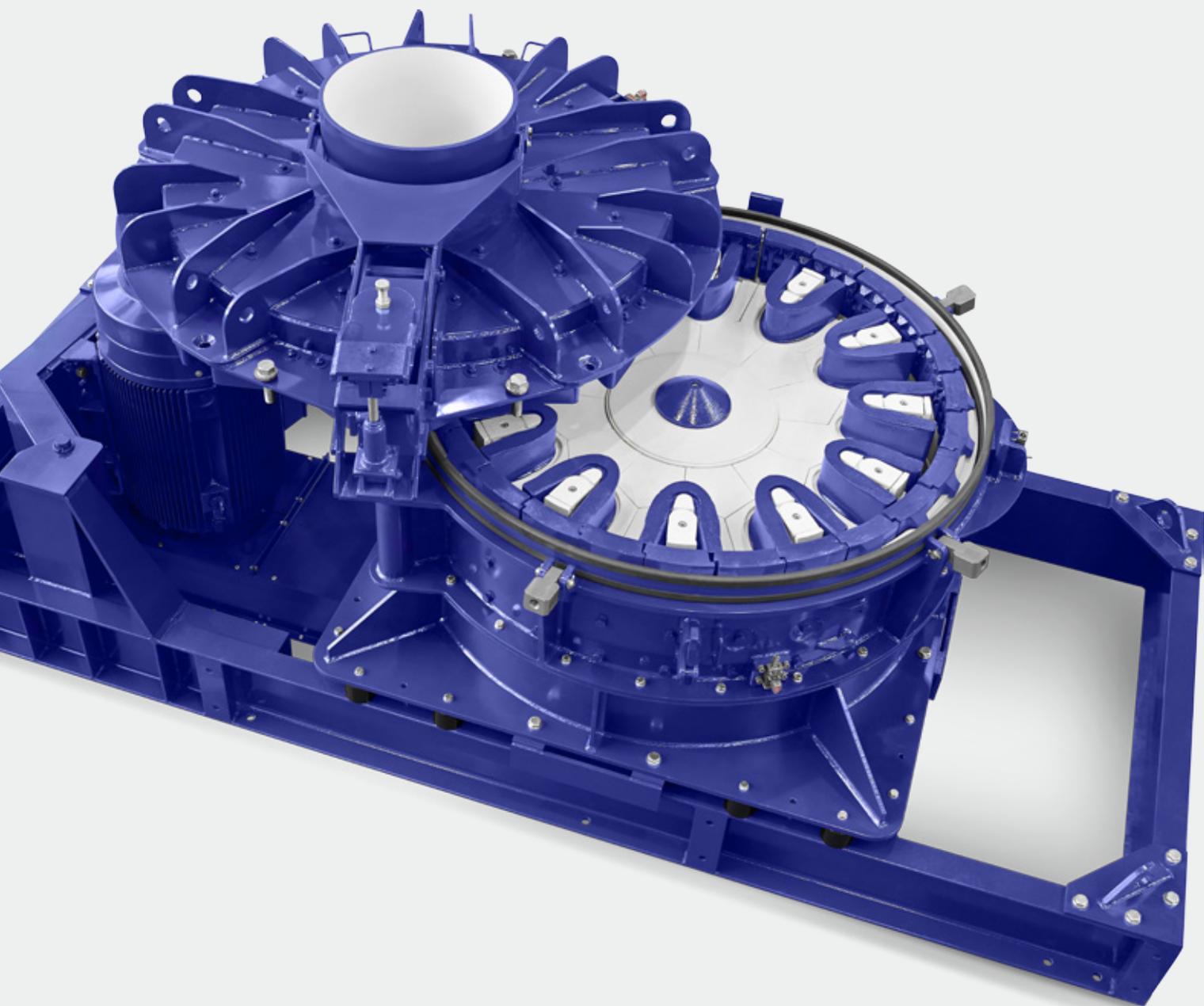
RPM & RPMF

Rotor Impact Mill

The Sand Maker

BHS
SONTHOFEN

TRANSFORMING
MATERIALS
INTO VALUE



Headquarters of BHS-Sonthofen



TRANSFORMING MATERIALS INTO VALUE

BHS
SONTHOFEN



The Company

BHS-Sonthofen is an owner-operated group of companies specialized in machinery and plant engineering. The group is headquartered in Sonthofen, Germany. BHS provides technical solutions for mechanical process engineering with its focus on mixing, crushing, recycling and filtration technologies. With more than 300 employees and several subsidiaries, BHS-Sonthofen maintains a global presence.

Experience

We have been manufacturing crushers and mills for over 100 years. About 50 years ago, we specialized in impact crushing. The primary focus of our technical development and application expertise is on our vertical-shaft impact crushers.

Crushing trials at the BHS technical center

The BHS technology center located at the Sonthofen site provides customers the opportunity of carrying out crushing tests with their own materials. These tests provide important decision basis for the optimization of planned upstream and downstream processes, as well as findings about the expected end product results.

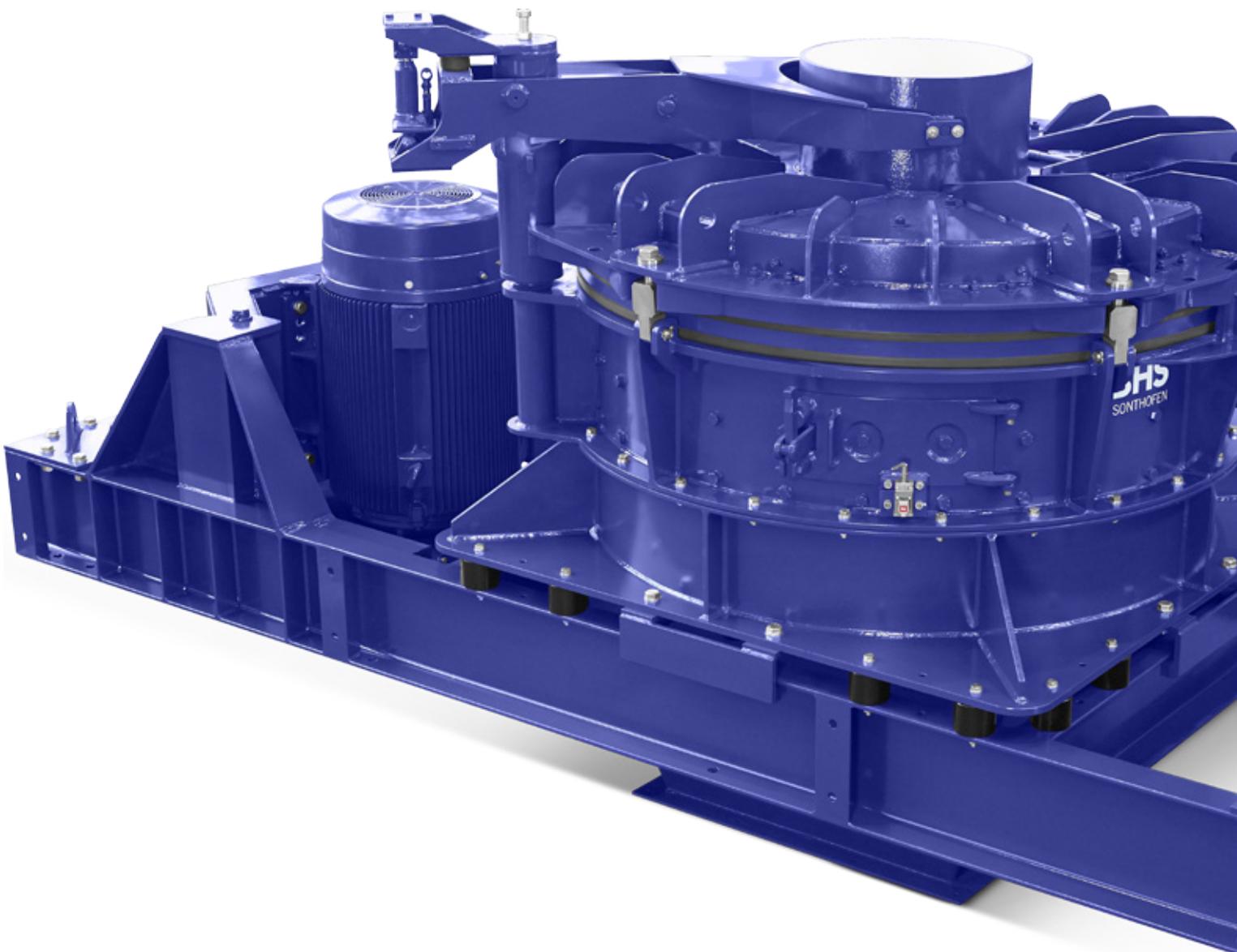
Worldwide service

BHS provides fast and reliable service around the world, complete with technical customer support and a large inventory of spare parts for all common machine types, including older models.

www.bhs-sonthofen.com

BHS Rotor Impact Mill

The BHS Rotor Impact Mill is a high-performance crusher with a vertical shaft. The rotor impact mill enables you to achieve a high reduction ratio and excellent particle shape. The mill is suitable for crushing all low to moderately abrasive minerals and is therefore used predominantly in the production of sand for the concrete, asphalt and dry mortar industries.



Superior Machine Technology

Operational unit

The machine and drive train are assembled onto a base frame as a unit that is ready for installation. A large cover that can be raised hydraulically and pivoted by 360° allows unimpeded access.

Reliable lubrication

The BHS rotor impact mill is supplied with a recirculating oil lubrication system with cooling and integrated monitoring. This allows for low-maintenance, reliable operation.

Easy maintenance and high availability

All areas of the machine that are in contact with the crushing material are protected by wearing parts that are easy to exchange and made of materials that can be optimized for specific applications.

Vibration absorption

The rubber spring elements between the base frame and the machine absorb vibrations generated during operation and keep them away from the support structure. Excessive vibrations are registered by an electronic vibration monitor and cause the machine to be shut down.

Production of Quality Sand

Unique crushing principle

The impeller rotor of the BHS rotor impact mill is the only one of its kind worldwide. The high circumferential speed of the rotor results in an almost permanent gap between the tips of the horseshoe-shaped hammers and the anvil ring. The small gap width and the high energy input due to the circumferential speed result in a very high, targeted crushing ratio.

Grain shape

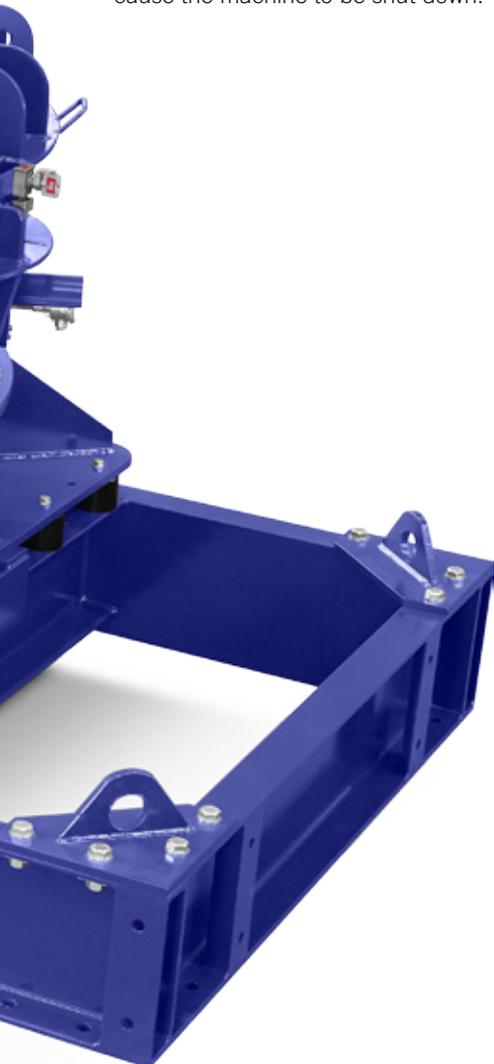
Rock crushing with the BHS rotor impact mill produces high-quality crushed sand with a cubical grain shape. This is ideally suited for ensuring the workability of dry mortar, for example.

Consistent grading curve of the final product

The unique functional principle of the BHS rotor impact mill guarantees consistent grading curves. The reduction ratio is determined by the speed of rotation and the gap size. The degree of wear on the crushing tools has no negative influence on the quality of the grading curve.

The finest sand

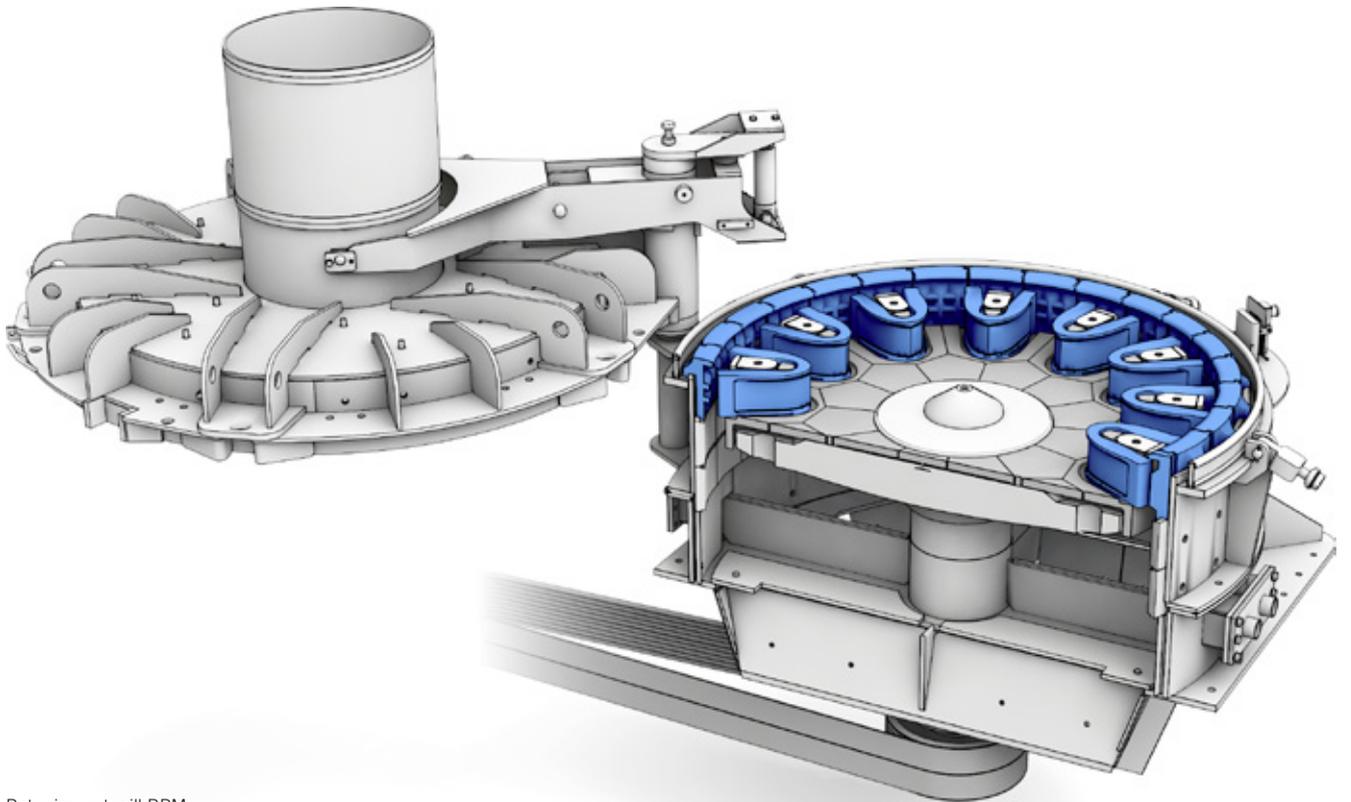
Thanks to the narrower milling gap and the higher circumferential speed of the rotor, the material in the RPF rotor impact mill is exposed to more intense stress. The result, in percentage terms, is a higher proportion of fine sand in the grain-size range from 0 to 2 mm.



Two Versions of the Rotor Impact Mill

The RPM is the rotor impact mill used in the building materials industry. The machine has been a proven reliable tool in the production of sand for many years. The RPMF pulverizer produces even finer fractions, and the output material contains a significantly higher percentage of fine sand.

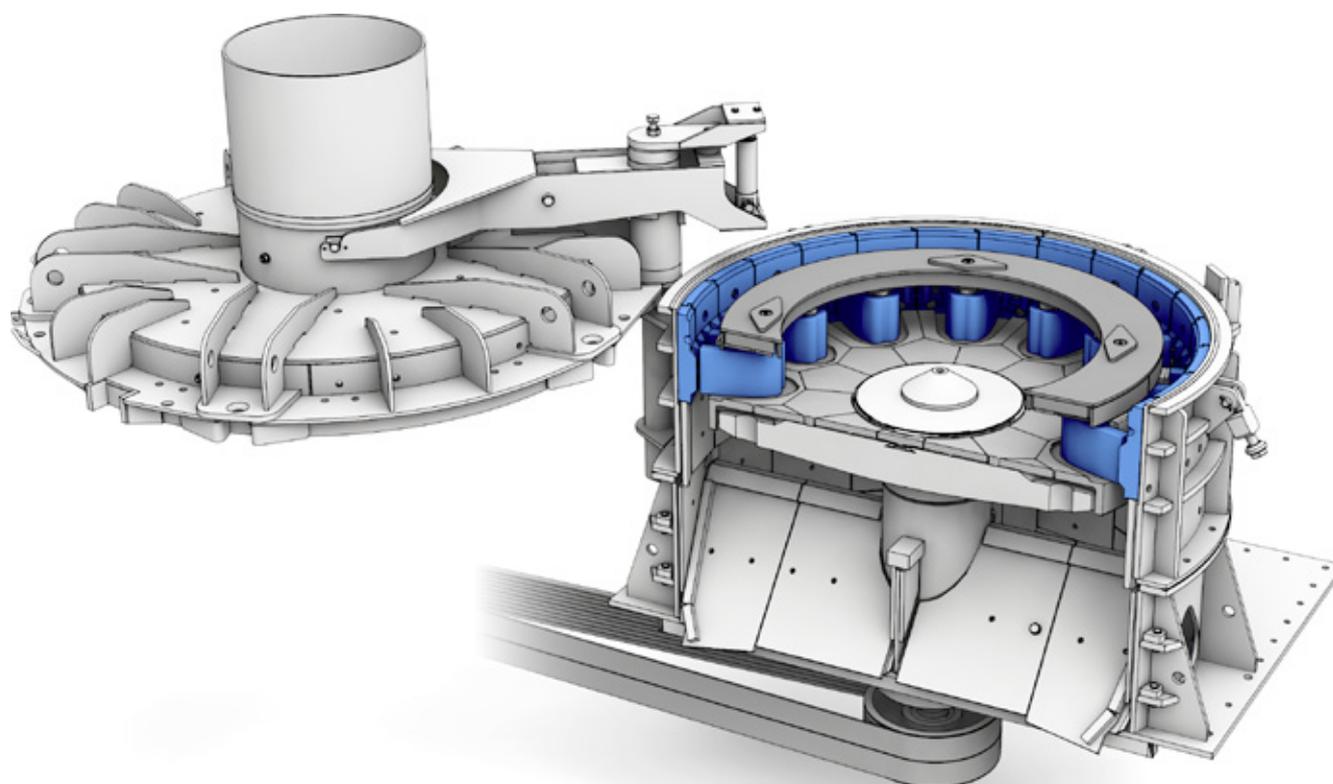
BHS rotor impact mills are not only used in the production of sand for the dry mortar industry. They have also proved themselves useful in the production of surfaces for sports facilities, as well as in the milling of fertilizers from limestone, dolomite, gypsum, anhydrite and burnt lime.



Rotor impact mill RPM

Rotor Impact Mill RPF – the pulverizer

The RPF is characterized by a higher circumferential speed and a significantly smaller milling gap. This makes the pulverizer the ideal machine for producing sand in the grain-size range from 0 to 2 mm.



Rotor impact mill RPF with rotor ring

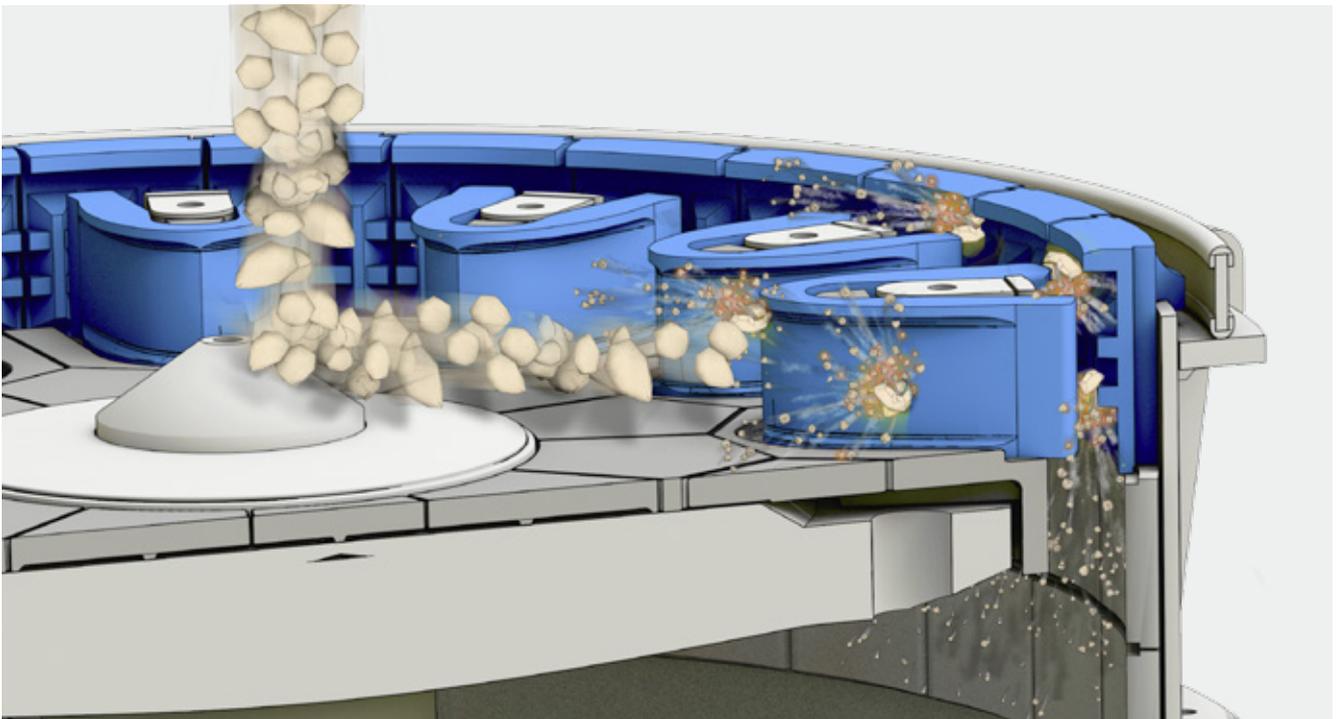
Functional Description

Rotor Impact Mill RPM

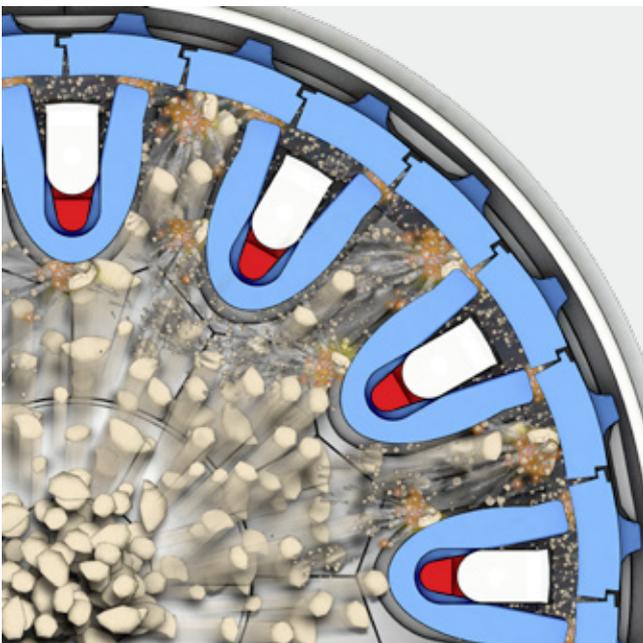
The input material is fed into the machine from above at the center. When it impacts the rotor, the material is accelerated towards the outside through centrifugal forces; there, the horseshoe-shaped hammers hit it and throw it against the anvil ring. Here, in the milling gap, it is crushed as a result of the impact and shearing forces. The material leaves the rotor through the gap and falls down through two outlet chutes.

Rotor Impact Mill RPMF – the pulverizer

The pulverizer uses the same crushing principle as the RPM. The difference is that the rock is exposed to more intense stress through a combination of higher circumferential speed and a narrower milling gap. The result, in percentage terms, is a higher proportion of fine sand.



Operating principle of the RPM (side view)



Operating principle of the RPM (top view)

Advantages of the Rotor

Replaceable crushing tools

The anvil ring elements are hooked into the upper milling housing (RPM) or are screwed into it (RPMF). The horseshoe-shaped impact hammers are mounted to the rotor and are held on the rotor pegs by centrifugal force. Both the anvil ring and the impact hammers are easily replaced.

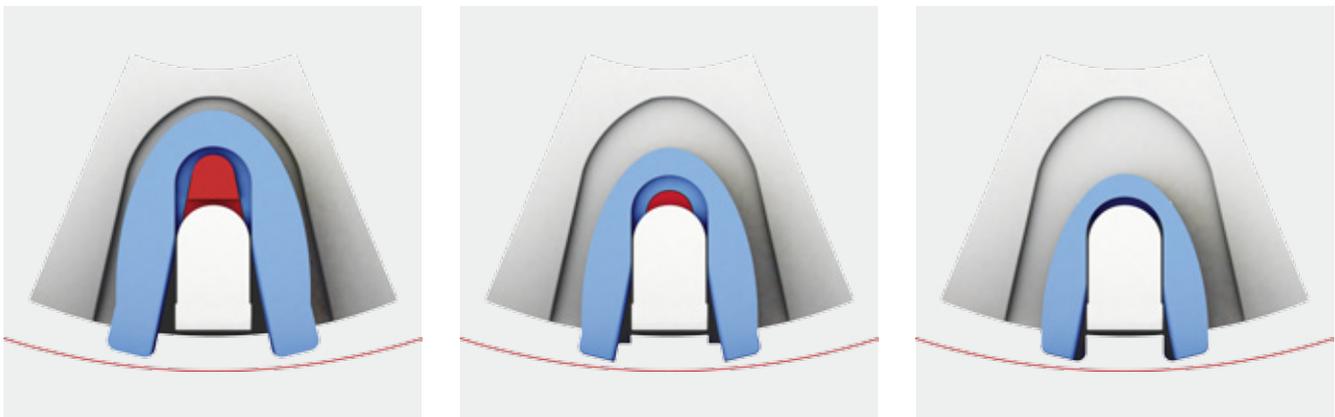
Adjustable gap

A set of replaceable spacers is used to configure the ring gap. The ongoing wear and tear of the impact hammers causes the gap width to change; this can be easily corrected by replacing spacers in different sizes (shown in red in the illustration).

Optimizing service life

The rotor direction can be reversed, allowing both sides of the impact hammers to be fully utilized.

Spacers for increasing degrees of wear



AREAS OF USE AND POSSIBLE APPLICATIONS

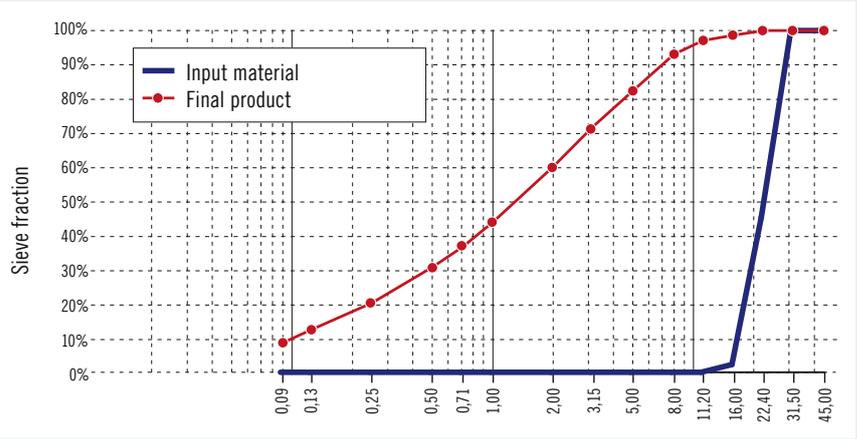
Production of sand:

- » as concrete and mortar sand for the construction industry
- » as high-quality crushed sand for the asphalt industry
- » for the production of ready-mixed dry mortar
- » for the manufacture of surfaces for sports facilities
- » for fireproof building materials

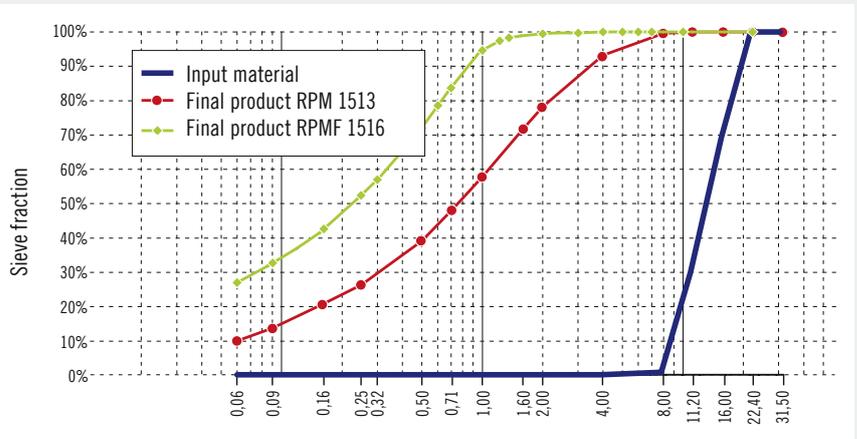
Milling of fertilizers from:

- » limestone, dolomite, gypsum, anhydrite, burnt lime
- » synthetic fertilizers

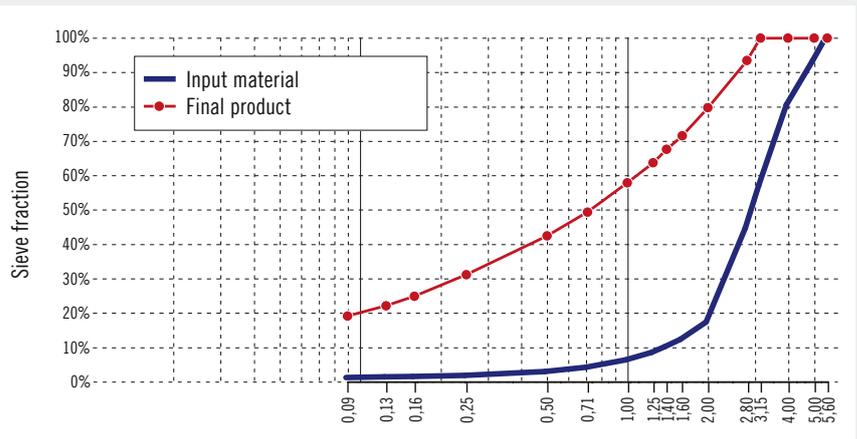
RPM 1113 for the production of concrete sand (0–2 mm) from gravel (16–32 mm)



Comparison of RPM 1513 and RPMF 1516 for the production of dry mortar sand (0–1.6 mm) from limestone (8–20 mm)



RPM 1113 for the production of high-quality crushed sand (0–2 mm) from off-spec gravel fractions (2–5 mm, andesite)





Use of two RPM 1513 rotor impact mills in a dry-mortar plant in the United Arab Emirates (UAE)



Five BHS rotor impact mills of the RPM 1513 type are in use at a dry-mortar plant in Thailand

Reinforced cover lining

In order to increase the service life, a cover with reinforced lining can be selected as an option.

Electro-hydraulic cover opening

For even faster opening of the machine cover for maintenance and inspection, an optional electro-hydraulic actuation mechanism is available.

Electrical terminal box

If required, all electrical wiring can be bundled in a terminal box for easy installation.

Intensive cooling

In the event of high ambient temperatures or if the material to be processed is hot, a supplementary lubrication unit featuring a larger storage volume and stronger cooling power can be provided.

Air cannon

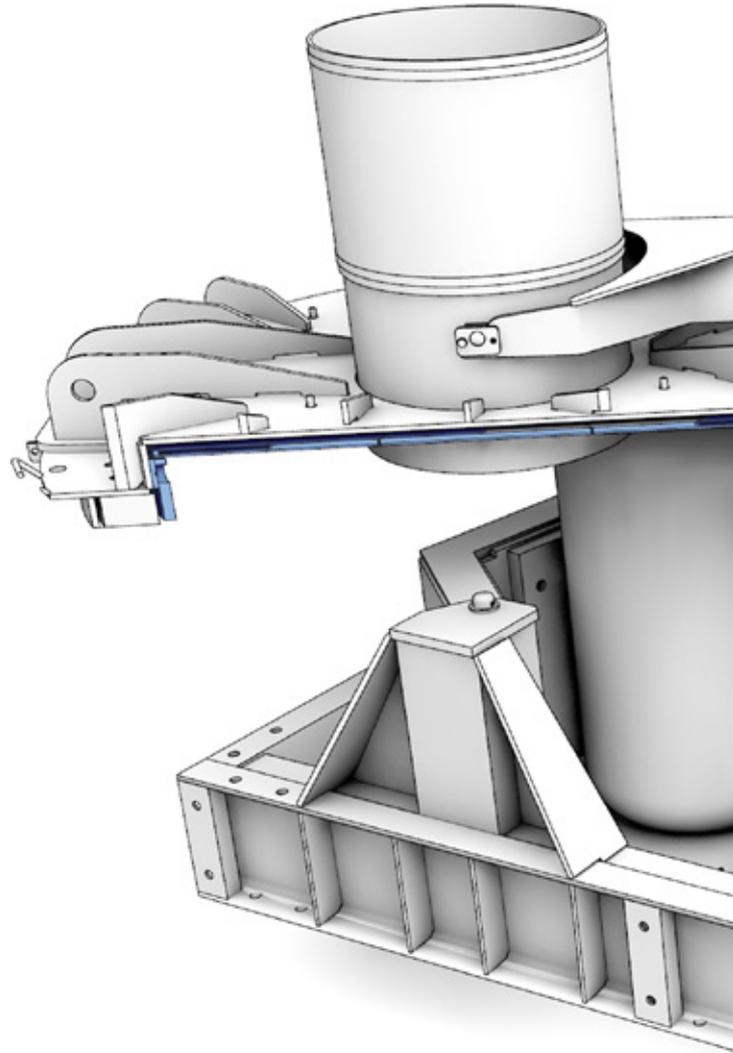
In order to reduce material deposits in the outlet area, the crusher can be optionally equipped with air cannons.

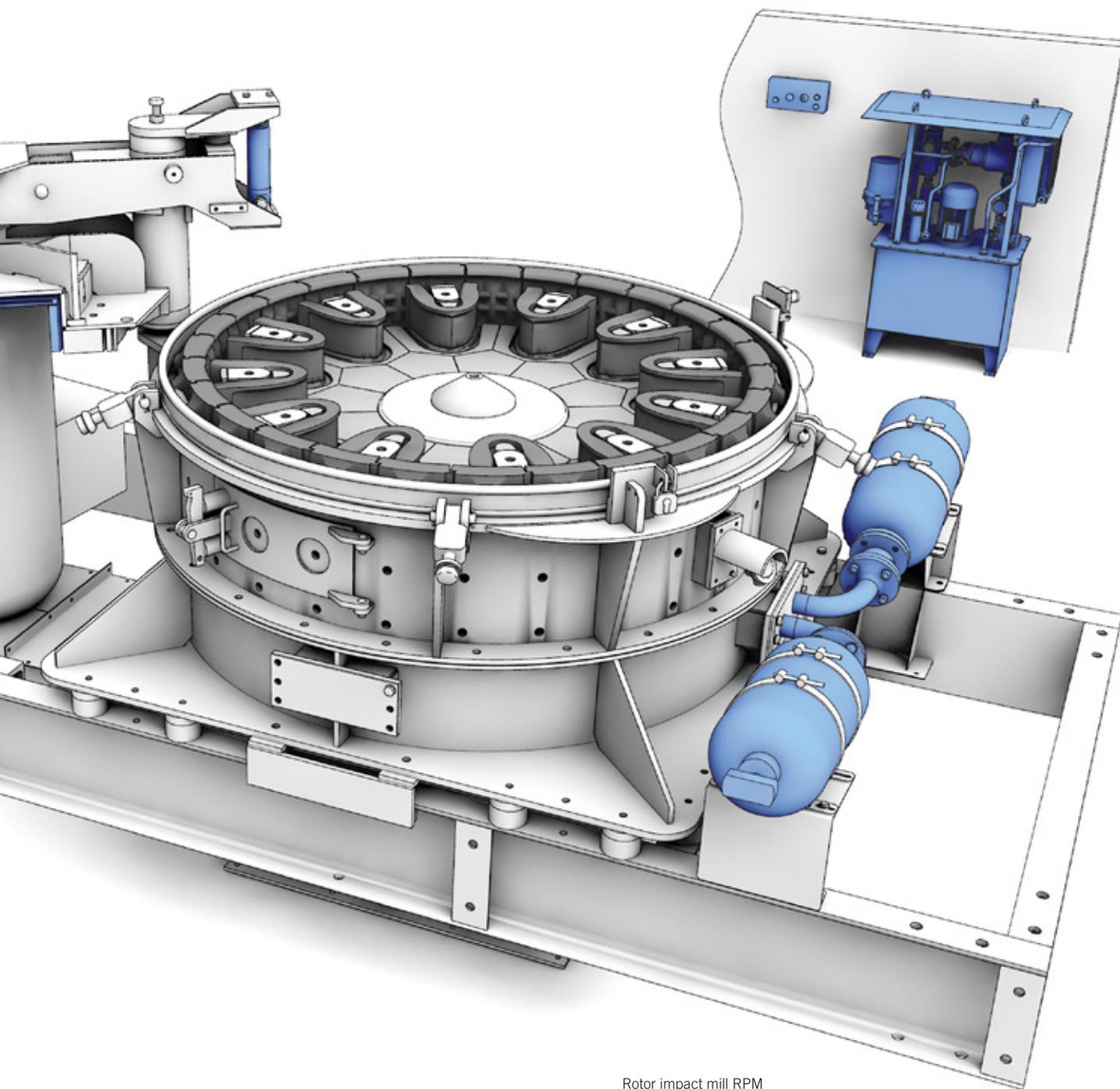
Control system

As an alternative to integrate the machine into the plant control a BHS PLC control (including touchscreen) and a frequency converter can be supplied if required. This allows an autonomous operation and monitoring of the machine's function.

Periphery

We can also provide the steel construction, storage bunker and metering equipment, feed and discharge equipment, and dust capture systems – all adapted to your specific applications.





Rotor impact mill RPM

Testing gives certainty

We operate a large-scale test plant on our Sonthofen business premises. It comprises all of our crushing machines in production scale.

We offer to perform crushing tests on your input material at this facility. Various machine parameters can be tested intensively. This is followed by a detailed evaluation of the data and a grain-size analysis, which serves as the basis for optimal machine configuration.

BHS technical center in Sonthofen for customer-specific testing



Performance data

Type	Rotor diameter x height	Number of hammers	Circumferential speed (max.)	Drive power (max.)	Throughput rate ¹⁾ (max.)	Input size ²⁾ (max.)
RPM 0813	850 x 135 mm	6	65 m/s	55 kW	20 t/h	45 mm
RPM 1113	1,150 x 135 mm	8	70 m/s	132 kW	35 t/h	56 mm
RPM 1513	1,500 x 135 mm	12	70 m/s	200 kW	70 t/h	56 mm
RPMF 1116	1,150 x 160 mm	8	90 m/s	200 kW	25 t/h	32 mm
RPMF 1516	1,500 x 160 mm	12	90 m/s	315 kW	55 t/h	32 mm

Dimensions and weights

Type	A	B	C	D	E	Weight ³⁾
RPM 0813	2,800 mm	1,270 mm	1,975 mm	219 mm	770 mm	4,400 kg
RPM 1113	3,080 mm	1,500 mm	2,110 mm	406 mm	940 mm	6,800 kg
RPM 1513	4,500 mm	1,900 mm	2,125 mm	610 mm	970 mm	9,100 kg
RPMF 1116	4,600 mm	2,000 mm	2,790 mm	406 mm	1,300 mm	8,000 kg
RPMF 1516	4,900 mm	2,120 mm	2,850 mm	610 mm	1,540 mm	12,500 kg

¹⁾ The throughput rate depends on the circumferential speed of the rotor and the grading curve of the input material.

²⁾ The input size depends on the type of rock, the circumferential speed of the rotor, and the percentage of maximum particle size in the grading curve (screened through square mesh).

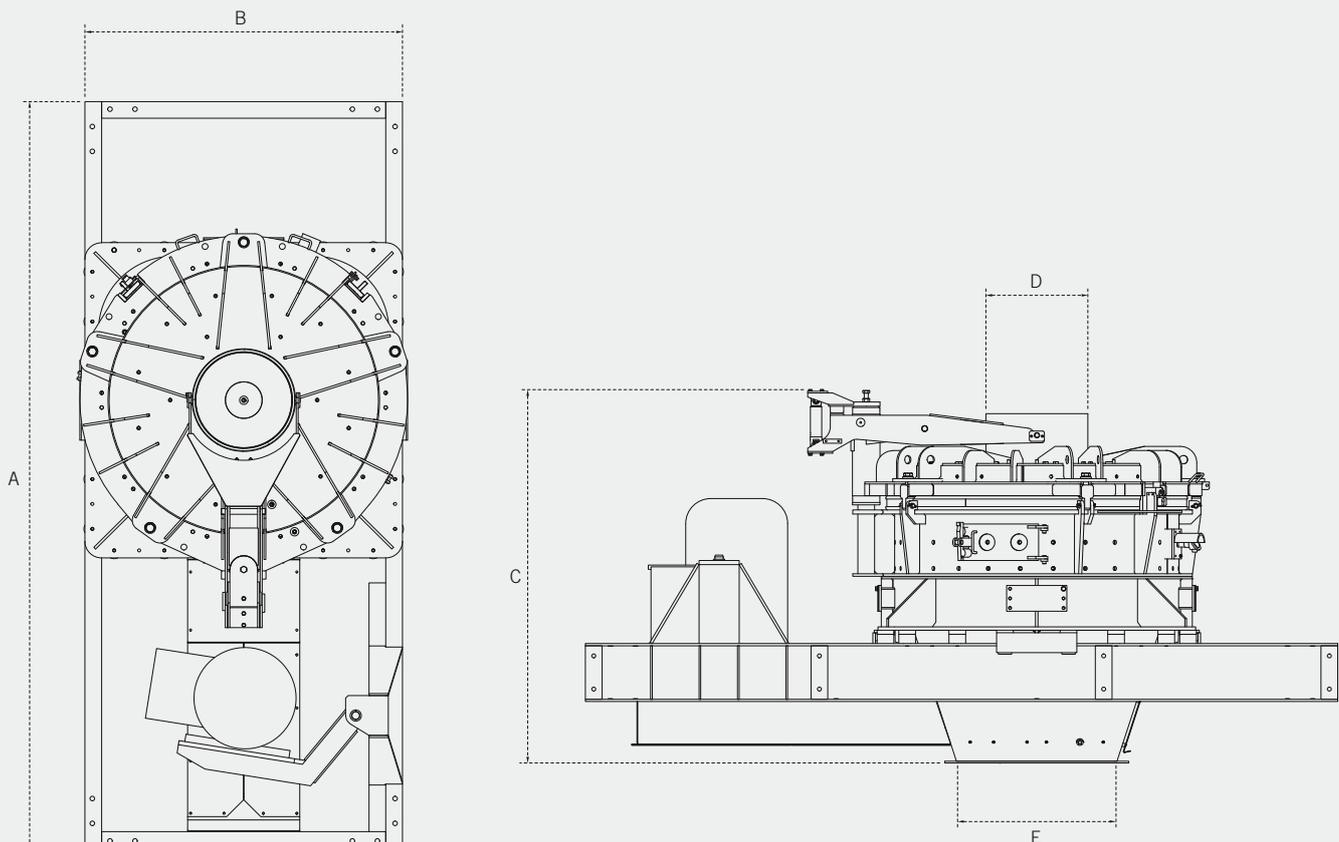
³⁾ Weights refer to the standard design without motor and accessories.

All specifications apply to the standard design.

Technical specifications for customized models may differ from the data provided here.

All technical specifications are subject to change due to continuous development.

Subject to change without notice.



BHS FIELDS OF COMPETENCE



MIXING
TECHNOLOGY



CRUSHING
TECHNOLOGY



RECYCLING
TECHNOLOGY



FILTRATION
TECHNOLOGY

