



High Pressure Grinding Mill

The [High Pressure Grinding Mill](#) is a new type product, which is developed on the basis of Raymond grinder. Compared with the Raymond grinder, under the function of strong pressure spring, the pressure between roller and materials can be improved by 1500KgF; the output can be improved by 10% under the same powder condition. The machine are widely used in grinding more than 320 noninflammable and nonexplosive materials with a Moh's hardness below 9.4 scale, a humidity below 6%, such as barite, calcite, limestone, potash, ceramic, slag, glass, manganese, chrome and other materials used in mining, construction, chemical and metallurgy. The sizes of powder can be controlled ranging from 80 to 480 meshes, minimum size can reach 1000 meshes. By being equipped particular parts, the High pressure mill can produce thick powders ranging from 30 to 80 meshes and output will be higher.



Application Of the High Pressure Grinding Mill

This [Grinding Mill](#) is applicable to processing of various minerals such as materials used in metallurgy, chemical industry and mine as well as building materials. The high pressure mill is able to pulverize and process various non-inflammable and inexplusive minerals



whose Mohs' hardness are lower than 9.3 grade, degree of moisture less than 6%. For example, quartz, feldspar, calcspar, talc, barite, fluorite, terrae rare, marble, ceramics, aluminum vanadic ochre, manganese ore, iron ore, copper ore, phosphorus ore, red iron oxide, Zircon sand, slag, granulating slag, cement clinker, active carbon, dolomite, granite, garnet, yellow iron oxide, bean cake, fertilizer, composite fertilizer, fly ash, bituminous coal, coking coal, brown coal, magnesite sand, chrome oxide green, gold mine, red mud, clay, kaolin, coke, coal slack, china clay, kyanite, fluorite, bentonite, medical stone, rock flow, mixed greenstone, pyrophyllite, shale, purple sandstone, green mixed stone, falling stone, rag stone, gypsum, graphite, silicon carbide, heat insulation material etc.

Features of The High Pressure Grinding Mill

- 1) Compared with other [grinders](#), its grinding power has been improved 800-1200kgs.
- 2) Compared with airflow grinder, its cost of input has been greatly reduced and is about one fourth that of airflow grinder.
- 3) With equal production, energy consumption of the system is one third that of airflow grinder
- 4) Less production procedure
- 5) Good sealing performance
- 6) Good performance of dust removal; fully meets national dust emission standard.
- 7) High production capacity; Compared with other grinders under same condition, its production has been improved 20-30%.
- 8) Wide range of final grain size. Maximum grain size: 30mu; ordinary grain size: 425mu; some materials: 600-1000mu. The grain size may reach to 1250mu when special device is provided.
- 9) Convenient adjustment and operation.



Operating Principle And Structure Of The Grinding Mill

The whole strong pressure grinding mill consists of principal machine, analyzer, piping devices, blower, electric control etc. (for detailed information, please refer to basic installation figure). The user can configure jaw crusher, bucket elevator and electric-vibrating feeder in person according to its own requirements.

Operating principle of the high pressure grinding mill

Bulk materials are pulverized to grains in required size by jaw crusher and conveyed to storage bin by the elevator. Vibrating feeder feeds quantitative grains into the grinding room of the principal machine evenly and continuously. When those grains are grinded into powder lot, they are then brew away by airflow from the blower and classified by the analyzer. Those who reach the degree of fineness go through a pipe along airflow, and then into cyclone collector where they are separated. After the process of separation, finished powder lot are outflow from powder pipe. Then, the airflow goes back to wind pipe via upper cyclone collector, to the blower. This grinder adopts closed cycle airflow system which is able to circulate and flow under positive, negative pressure states.

Materials in the grinding room contain some water. Heat produced when grinding the materials may evaporate the water, which will change the quantity of airflow. If all pipes are not sealed closely, the quantity of circulating airflow will be increased. Therefore, the afterwind pipe between the blower and principal machine needs to be adjusted so as to balance the airflow and absorb unwanted airflow into bag dust remover. Collect fine powder brought in



by afterwind. Discharge afterwind when it is purified.

Gearing drives central shaft to run the principal machine. Upper end of the shaft connects with plum rack equipped with grinding roll device, which forms a vibrating pivot. The central shaft not only revolves around the center. Simultaneously, the grinding roll auto rotates due to friction effect while revolving around outwear. Spade system is fixed under plum rack and grinding roll. Materials are spaded into the gap between grinding roll and outwear when the spade and grinding roll rotate together. Therefore, a layer of padding material comes into being. A centrifugal force (i.e. squeezing force) is produced when the layer of padding material rotates along with the grinding roll together, which will crush the materials to produce powder lot.

The analyzer regulates the speed of motor to rotate blades on the turntable so as to have the powder lot classified. Adjust the speed of motor according to the size of final powder lot. If you want finer grain size, please adjust upwards the rotary speed of blades so that blades can contact with powder lot more. Thick powder lots are cast upon outer wall by blades. Under gravity action, they fall down and are crushed again in the grinding room. Qualified final powder lots are adsorbed into cyclone collector along with airflow through blades. Powder lots are collected when separated from the airflow.

Cyclone collector plays an important role to the performance of the grinder. Cyclone collector is rotating at high speed when airflow together with powder lots comes in. When airflow is separated from powder lots; it shrinks along the cone wall to the centre, to the bottom of the cone. When (airflow's natural length) an upwards moving airflow column is formed, powder lots are separated and fall down, and then are collected. The lower collector needs high sealing performance because upwards rotary airflow is under negative



pressure. It needs to be strictly separated from outside air, otherwise collected powder lots will be blew away by core airflow, which will directly affect the grinder's production capacity. To prevent this problem from happening, a powder-lock device is installed under the collector to separate outside positive pressure airflow from negative pressure airflow in the collector. The powder-lock device is a very important part. If the powder-lock device is absent, or its hyoplastron is not sealed tightly, then no or less powder lots will be produced which will severely affect the grinder's production capacity.

Structural feature of the whole Grinder Mill

The High Pressure [Grinder Mill](#) occupies small floor space. It has a whole set of production function, from bulk materials to broken materials, to final powder lots, packing, which independently forms into a production system.

The grinder can produce various kinds of final grains with even size in which 98% are in required size. Sieving rate meets 98%. No other grinder can be so efficient.

Gearing of principal machine adopts closed gear case so that it drives stably and reliably. The main parts of the grinder are all made of high grade steel. So, the whole grinder is long-lasting, stable and reliable.

Concentration control system is used in electrical system of the grinder. Basically, unmanned operation can be realized in grinding workshop because the grinder is of advanced and reasonable type. Vibrating feeder is small, low-weight, easy to be regulated, and able to feed materials evenly. It consumes less energy, and can be operated and maintained conveniently.

Technical Data Of High Pressure Grinding Mill

| Type | Roller quantity | Roller size (mm) | Max.-Feed s | Product size (mm) | Capacity (t/h) | Pow er (k | Weigh t (t) |
|------|-----------------|------------------|-------------|-------------------|----------------|-----------|-------------|
|------|-----------------|------------------|-------------|-------------------|----------------|-----------|-------------|



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| | | | ize (mm) | | | w) | |
|---------|---|---------|-------------|-------------|---------|------|------|
| QYM650 | 3 | 210X150 | 15 | 0.613-0.033 | 0.4-1.8 | 15 | 3.8 |
| QYM780 | 3 | 260X150 | 15 | 0.613-0.033 | 1-3 | 18.5 | 4.8 |
| QYM830 | 3 | 270X140 | 20 | 0.613-0.033 | 1.2-4 | 22 | 8.5 |
| QYM3117 | 4 | 310X170 | 25 | 0.613-0.033 | 2.1-5.6 | 37 | 16 |
| QYM4121 | 5 | 410X210 | 30 | 0.613-0.033 | 2.5-9.5 | 75 | 25.7 |

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