

Raymond® Bowl Mills

For pulverizing coal and pet coke

- Simultaneously dries, pulverizes and classifies solid fuels
- Available in nine sizes
- Ease of maintenance
- Cost efficient
- Custom designed for your processing application



The Raymond® Bowl Mill with over 5,000 units in place worldwide is considered by many to be the finest machine available for pulverizing coal and pet coke as primary fuel for firing kilns, air heaters and other process equipment. It provides a safe, efficient means of uniformly pulverizing and drying these fuels.

Bowl mill system

The typical Raymond® Bowl Mill system is designed to simultaneously dry, pulverize, and classify solid fuels to 95% passing 200 mesh (<5%R75μ) with a wide range of capacities from 24-150 T / 21.7-136.1 MT

Cost efficiency

The Raymond® Bowl Mill can reduce your operating cost while enhancing overall process control and plant efficiency. The simple, effective design translates to a pulverizer that is simple to erect, simple to operate and easy to maintain while providing the flexibility necessary for today's sophisticated process system.

Custom engineered systems

Each bowl mill system is custom designed to achieve the best solution for your processing application. The mill, feeder, classifier, fan, cyclone, dust collector, and other system components, are selected to meet the requirements and characteristics of the material processed.

Experience

Raymond® pulverizing and classification equipment has been setting the standard in size reduction since 1887, serving many types of mineral processing industries. Our portfolio includes not only the Raymond® Bowl Mill, but the Raymond® Roller Mill, Raymond® Imp™ Mill, Raymond® Vertical Mill, Raymond® Ultra Fine Mill and others.

Raymond® is known for its reliable size reduction and classification equipment by customers worldwide. Our products are supported by our engineering, field service and replacement parts departments to ensure the highest level of customer satisfaction, while delivering the reliability and high level of performance that today's industrial applications require.

Bowl mill system

The Raymond® Bowl Mill continues to redefine the standards of coal grinding. Their designs feature engineered attributes that lower initial cost, enhance operations, assure maximum availability and facilitate maintenance.

Utilizing our latest dynamic turbine classifiers, pulverized solid fuel can be generated possessing a steeper particle size distribution and reduced top size. This yields a more homogeneous product for better combustion.

Applications

The Raymond® Bowl Mill has played an important part in the conversion to solid fuel by a number of industries. As energy costs continue to rise, and the differential between coal and other petroleum-based fuels continue to increase, more industries are learning that converting to pulverized coal firing can be economically feasible. Raymond® Bowl Mills are now operating in such diverse applications as cement kilns, lime kilns, coal gasification plants, taconite kilns, industrial air heaters and furnaces and coal/oil mixture-fired boilers.

Performance features

- Wide range of capabilities - nine sizes provide base capabilities from 24-150 T / 21.7-136.1 MT.
- Quiet, smooth operation - design insures no metal-to-metal contact between grinding rolls and ring, fuels grinds on fuel resulting in smooth, vibration-free operation with low noise level.
- Handles a variety of fuels – accepts bituminous, sub-bituminous and lignite coals and petroleum coke with initial moisture content as high as 40% for lignites.
- Flexibility – available with both dynamic and static classifier, spring or hydraulic journal loading, and is designed to operate efficiently in direct or indirect solid fuel firing systems.

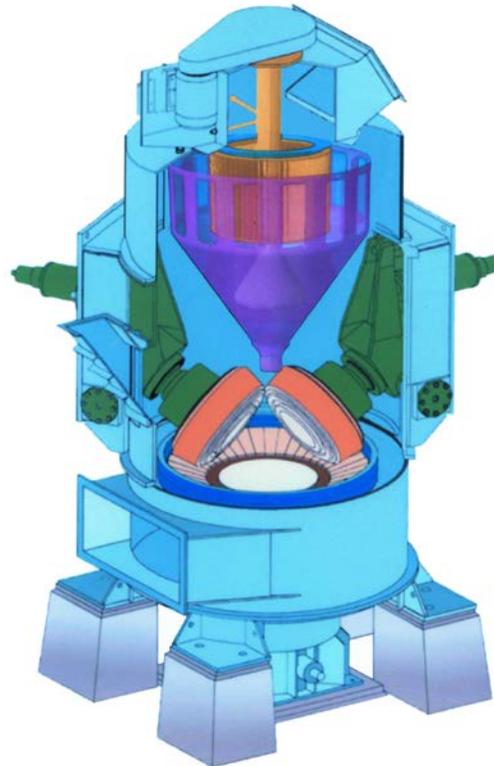
Ease of maintenance

- Made to operate dependably and consistently – Replacement of critical grinding elements can be accomplished in a minimum of time with easy maintenance features.
- Easily replaced journal and journal rolls – journal is removed through its own integral door. Design incorporates lift-out feature for easy access, no need to dismantle journal loading mechanism.
- Segmented grinding rings to facilitate replacement – wear surface on bowl is segmented into small pieces, no special tools or handling fixtures required.
- Simple preventative maintenance procedure – check the level and condition of oil in journals and gear reducer on a regular basis.



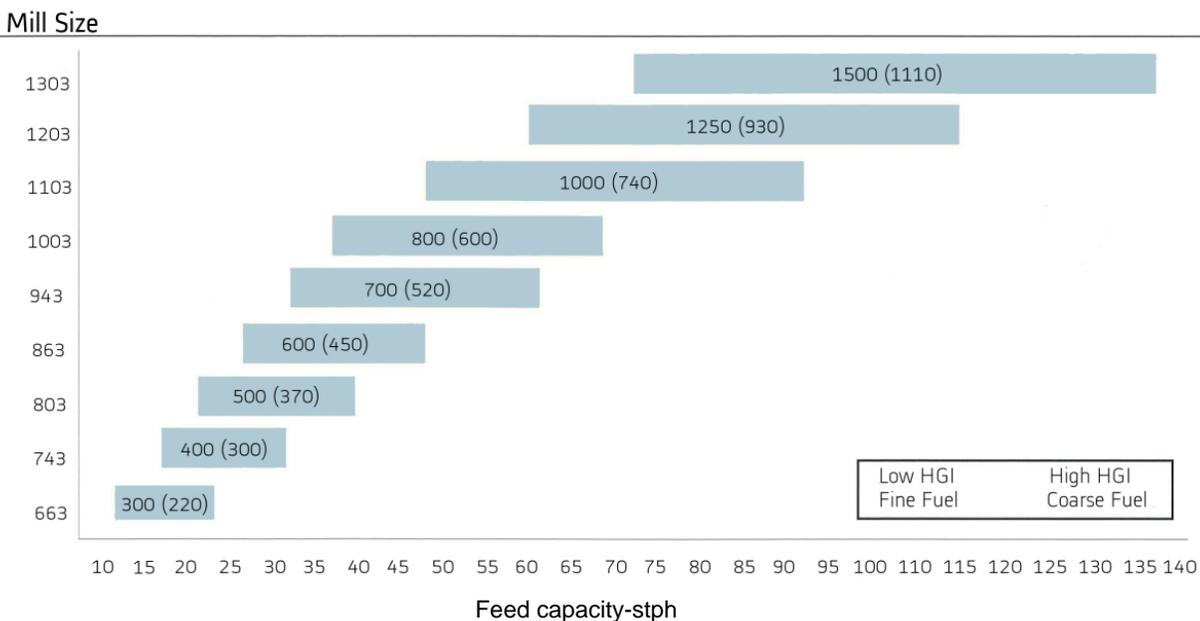
Design features

- Externally adjustable classifier – static or dynamic, selection of fineness from 70% to 95% through 200 mesh (75 microns) without stopping system.
- High turndown ratio – system allows safe, instantaneous adjustment of capacity without affecting fineness, with turndown ration up to 5 to 1.
- Rolls – tapered grinding rolls are mounted in individual pivoting journal assemblies that are supported independently by pulverizer.
- Journal loading – spring loading is available for maximum simplicity or hydraulic loading for flexibility.
- Gear reducer – independent right angle reducer with external lubrication.
- Low pressure drop – mill housing and bowl geometry provides minimum pressure drop (nominal 10 in. wg or 25mm wg through mill) means fan power savings.
- Efficient rejection of impurities – designed to reject up to 25% of inorganic pyritic sulphur, as well as other impurities and tramp iron.
- Complies with NFPA – all bowl mills are constructed to comply with NFPA (National Fire Protection Association) Code 85.



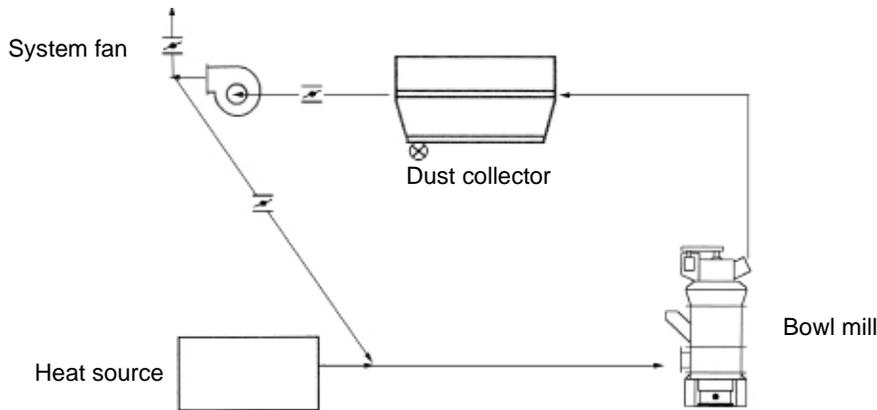
Capacity ranges for Raymond® Bowl Mills

Maximum connected mill power in hp/kW is indicated below for each mill size. Hardgrove grindability index (HGI) and pulverized fuel size determines feed capacity in stph.



System arrangement

Like its predecessors, the Raymond® Bowl Mill is readily adaptable to a wide variety of applications and firing circuit designs. From alternatives such as using "once-through" air handling with hot air from a cement cooler or "recirculation" utilizing drying gas from a preheater discharge, our engineers can assist you in designing a firing circuit appropriate for your application and fuel source, for coarse or fine grinds and from low to high moisture coals,



Airflow and power requirements for Raymond® Bowl Mill systems

Mill Size	Mill Power		Nominal Airflow		Turbine Power	
663	300 hp	220 kW	20000 ft ³ /min	34000 m ³ /hr	25 hp	18 kW
743	400 hp	300 kW	28000 ft ³ /min	48000 m ³ /hr	30 hp	22 kW
803	500 hp	370 kW	36000 ft ³ /min	61000 m ³ /hr	40 hp	30 kW
863	600 hp	450 kW	42000 ft ³ /min	71000 m ³ /hr	50 hp	37 kW
943	700 hp	520 kW	54000 ft ³ /min	92000 m ³ /hr	60 hp	45 kW
1003	800 hp	600 kW	62000 ft ³ /min	105000 m ³ /hr	75 hp	55 kW
1103	1000 hp	740 kW	82000 ft ³ /min	140000 m ³ /hr	100 hp	75 kW
1203	1250 hp	930 kW	100000 ft ³ /min	170000 m ³ /hr	125 hp	90 kW
1303	1500 hp	1100 kW	120000 ft ³ /min	204000 m ³ /hr	150 hp	110 kW

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