

FBR® REVERSIBLE HAMMERMILL



Pennsylvania
Crusher



The Most Choices, The Most Experience



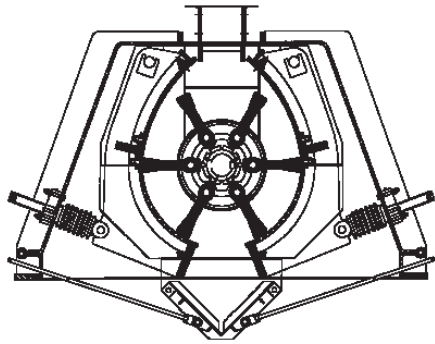
A RUGGED HAMMERMILL FOR LASTING SERVICE, WITH LOW INITIAL COST, CONTINUING LOW MAINTENANCE

This hammermill crushes fuel and limestone for fluid bed boiler operations and is also used for many other minerals in various industries.

It is well suited for power plant service from the standpoint of economy, performance and maintenance. While its cost of ownership is far less than one might expect of a reversible hammermill, its ability to crush coal, sorbents and other minerals is comparable to crushers that are far more costly.

Unlike some light duty crushers offered today which were designed to crush non-mineral products, our FBR model is very rugged and will stand up to the rigors of industrial service. Year in, year out, it operates reliably, offering extremely long service life, coupled with simplified maintenance requirements.

This crusher possesses a considerable performance record. It has found acceptance among numerous power generating stations and minerals producers within the U.S. as well as in Asia, Europe, and South America. Plant names are available upon request.



MAJOR ADVANTAGES

The crushing chamber is symmetrical and the rotor assembly is reversible. In effect, this provides two distinct crushing chambers, enabling you to crush in one chamber or the other by simply reversing the motor.

Regular reversal of the rotor produces uniform wear on both working faces of the hammer, keeping its edges sharp and producing a consistently uniform output size. The need to shut down and manually turn hammers as required of one-way crushers is eliminated.

Another advantage exists because the other crushing components — breaker blocks, screen plate or screen bars — are double in number and therefore provide greatly extended time-between-changes, about twice that of one-way crushers.

Rotor Assembly

The rotor assembly consists of the rotor shaft, suspension discs and hammers. Forged of special steel and heat treated, the rotor shaft is drilled for convenient hydraulic removal of the bearings. The suspension discs are drilled for various hammer configurations, a feature that greatly enhances the flexibility of this particular design.

The hammers are forged steel, differentially heat treated to a BHN that is superior to ordinary cast manganese steel hammers.

The heads of these special hammers are hardened to 500 BHN. This makes them abrasion resistant from the outset, unlike ordinary hammers which must rely on work hardening, which is unreliable and inefficient. In the vital shank and eye areas, Pennsylvania hammers are normalized to a nominal 350 BHN, providing the ductility needed to resist shock.

CRUSHING ACTION

Material enters through the feed chute into the upper half of the crushing chamber where it is subjected to two distinct crushing actions. It first is struck and shattered by the swing hammers and is then driven against the breaker blocks. It then ricochets back into the path of the hammers. By this point, most reduction has occurred.

As the shattered material enters the lower portion of the crushing chamber — the attrition zone — the hammers sweep it across the screen plate or screen bars — depending on model — and the final sizing is performed by shear and attrition. Proper output size is the result of correct clearance between the hammers and the screen cage being maintained.

In addition, power requirements are relatively low, and fines are kept at a minimum while meeting the D_{50} and top size requirements.



This view shows all major components. Both end-doors open fully and quickly for servicing or inspection.

TO ACHIEVE THE BEST INSTALLATION

Our application engineering staff can assist you by evaluating your material, by guiding you in selection of the correct crusher type and size, and in specifying the proper motor and other drive components.

Our resources include an extensive database of crushers and materials derived from a century of experience with crusher installations. This means that our recommendations will be based upon the actual performance of a crusher model and size.

In addition, we can review your arrangement of feed and discharge equipment and advise you on other important aspects. We frequently help customers to avoid problems that could otherwise result when a crusher is installed improperly. For example, improper feeding can result in material hitting the crusher hammers from the wrong angle or at the wrong velocity. These and other missteps would result in uneven or premature wear of crusher components.

MATERIALS HANDLED

Though the Model FBR was initially developed for coal and sorbents for fluid bed boiler operations, it is highly effective for crushing other materials as well:

- Chemicals
- Coal
- Calcined Petroleum Coke
- Limestone
- Pebble Lime
- Ores
- Other friable minerals and substances

TEST CRUSHING OF YOUR MATERIAL

Where necessary, we can also perform test crushing of your material(s) in our Crushing Test Laboratory and provide you with documented test results prior to purchase. Such test may involve one or more types of crushers, depending on circumstances.

Remember that Pennsylvania Crusher manufactures dozens of crusher models, in hundreds of sizes. We therefore have gained the experience and the perspective on how to equip our customers with the crusher that is best suited for their installation. For information about test crushing, please contact our representative or our home office as listed in this brochure.

STANDARD FEATURES

- Reversible rotor assembly
- Alloy forged steel hammers
- Alloy steel breaker plates (dual set)
- Alloy steel scrubber and screen sections (dual set)
- Both sides of unit open fully for complete access to the crushing chamber
- Product size maintenance and wear compensation via cage adjustment
- Tramp iron pocket

Options

- Hydraulic door opener
- Screen bar assemblies instead of screen plate
- Integrated into drying system

THE POSIMETRIC® FEEDER PRODUCES LONGER CRUSHER LIFE

The internal crushing elements of hammermills and other crushers perform better and last longer when material is properly fed into the crusher.

To ensure proper feeding, many plants now employ the Pennsylvania Posimetric® Feeder. It feeds material into your crusher at a constant rate and with the proper distribution across the full rotor width. This prevents premature wear and helps all operating components deliver their maximum service life.



Our application engineering professionals.

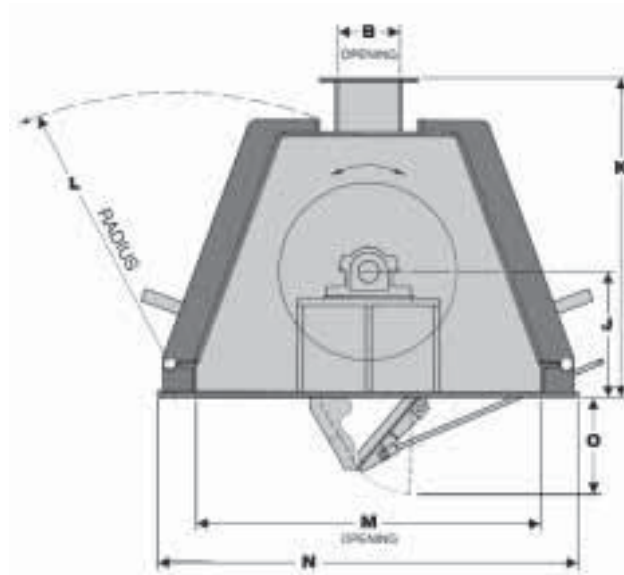
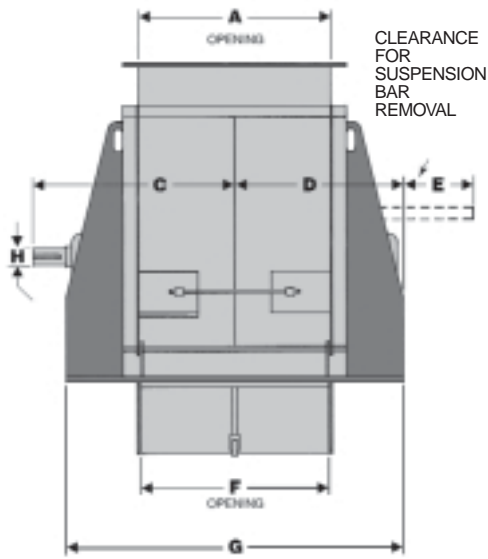


External adjustments are provided for adjusting the cage and for emptying the tramp iron pocket.



Prior to purchase, we can test-crush samples of your material in our fully-equipped Crushing Test Laboratory.

FBR® REVERSIBLE HAMMERMILL DIMENSIONS



Certified drawings provided for installation
Larger sizes are available

FBR Size	Approx. Shipping Wt. (lbs)	BRITISH IMPERIAL UNITS (INCHES)													
		A	B	C	D	E	F	G	H	J	K	L	M	N	O
422	6,600	19	9	30½	21	10	21	42	3½	24½	60	59	67	82	18
423	8,400	30¼	9	32½	25	27	33¼	50	3½	24½	60	59	67	82	18
424	10,200	38	9	45	31½	36	42	63	3¾	24½	60	59	67	82	18
483	12,600	31	10½	35½	27½	29	35	55	3¾	27	69	61½	74	88	24
484	15,400	38	10½	39	31	36	42	62	3¾	27	69	61½	74	88	24
485	18,400	45	10½	42½	34½	43	49	69	4	27	69	61½	74	88	24
545	22,000	43	12	50½	39	40	48	78	4	32½	78	78	103½	119½	26
547	28,900	64½	12	61¼	49¾	61½	69½	99½	4½	32½	78	78	103½	119½	26
549	36,000	86	12	72	60½	83	91	121	5	32½	78	78	103½	119½	26

FBR Size	Approx. Shipping Wt. (kg)	METRIC UNITS (mm)													
		A	B	C	D	E	F	G	H	J	K	L	M	N	O
422	2,994	483	229	775	533	254	533	1067	89	622	1524	1499	1702	2083	457
423	3,810	768	229	826	635	686	845	1270	89	622	1524	1499	1702	2083	457
424	4,627	965	229	1143	800	914	1067	1600	95	622	1524	1499	1702	2083	457
483	5,715	787	267	902	699	737	889	1397	95	686	1753	1562	1880	2235	600
484	6,985	965	267	991	787	914	1067	1575	95	686	1753	1562	1880	2235	600
485	8,346	1143	267	1080	876	1092	1245	1753	102	686	1753	1562	1880	2235	600
545	9,979	1092	305	1283	991	1016	1219	1981	102	826	1981	1981	2629	3035	660
547	13,109	1638	305	1556	1264	1562	1765	2527	114	826	1981	1981	2629	3035	660
549	16,329	2184	305	1829	1537	2108	2311	3073	127	826	1981	1981	2629	3035	660



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