



Union PROCESS[®]

**CIRCULATION
MODE**

DMQ[™]X

BEAD MILLING SYSTEM



EXPANDING THE POSSIBILITIES FOR SIZE REDUCTION[™]

DMQX™

BEAD MILLING SYSTEM

A HYBRID OF BEAD MILLING AND CIRCULATION GRINDING

As the company that first introduced Circulation Grinding to the world in the early 1970s, it makes sense that Union Process is also the company to combine the benefits of Circulation Grinding with the advantages of Bead Milling. The DMQX™ Horizontal Bead Milling System was designed to do just that.

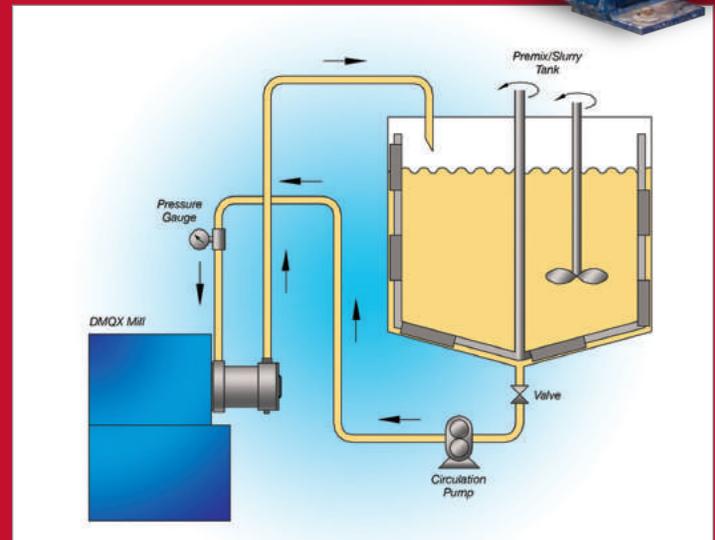


Model DMQX-10

On the cover: DMQX-80

HOW CIRCULATION GRINDING WORKS

The circulation grinding method involves a grinding mill (in this case, the DMQX™ Bead Mill) and a large process/holding tank that is typically about 10-20 times the size of the mill's grinding chamber. This proportionally-sized tank allows the turnover in the holding tank to happen about every 5-10 minutes. To assure optimum grinding and a narrow particle size distribution, the material must be pumped through the chamber at a very high rate. The DMQX™ has a special media separator with a large, open discharge area to help facilitate this high flow rate.



High pumping rate allows material to completely turn over in the holding tank every 5-10 minutes.

WHY CIRCULATION GRINDING?

Circulation Grinding is a cost-effective solution for grinding large quantities of material as it allows for a lower cost capital investment in equipment and grinding media than with many other grinding equipment options. Additional benefits of circulation grinding include a narrower particle size distribution, the ability to continuously monitor the slurry, add ingredients to the premix tank at any time during the grinding cycle and control temperature more precisely since the slurry spends only 15-25 seconds in the grinding chamber.

DMQX™ LABORATORY BEAD MILL

This lab mill is an ideal size for testing small amounts of material. It can be equipped with holding tanks from as small as 1 liter to as large as 20 liters (5 gal.) Results from the DMQX-07 may be scaled up to production-size models. Samples can be taken at any time. The mill comes complete with pump, stainless steel jacketed holding tank, and cartridge mechanical seal. It is easy to clean and maintain.

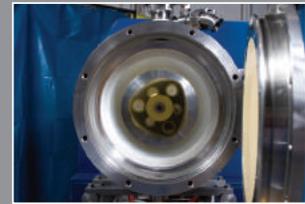
Model DMQX-07
(shown with
1-liter tank)



- Explosion-proof models available.
- Interchangeable grinding tanks (standard tank is 4 liters), discs and screens allow for easy changeover to metal-free grinding, if required.

FEATURES AND BENEFITS

- Operates in either Circulation or Continuous mode.
- Discs/Rods can be either hardened steel, 440C stainless steel, polyurethane or zirconium oxide.
- Separator rings can be either hardened steel, 440C stainless steel or zirconium oxide.
- Grinding chamber can be either 304 stainless steel or polyurethane, alumina, or zirconium oxide-lined.
- Cartridge-type double mechanical seal for easy maintenance.



Hinged door for easy access to grinding chamber.



Rail system allows for easy maintenance and tank removal.

- Easily adjustable product discharge openings maximize throughput and accommodate grinding media from 2mm down to .3 or smaller.
- Large, heavy-duty media separator located at the end of the mill makes service fast and easy.
- Production-sized mills include rail systems for easy maintenance and tank removal.
- Variable frequency drives are standard.
- Data acquisition optional.
- Installation requires no anchor bolts or special foundation.

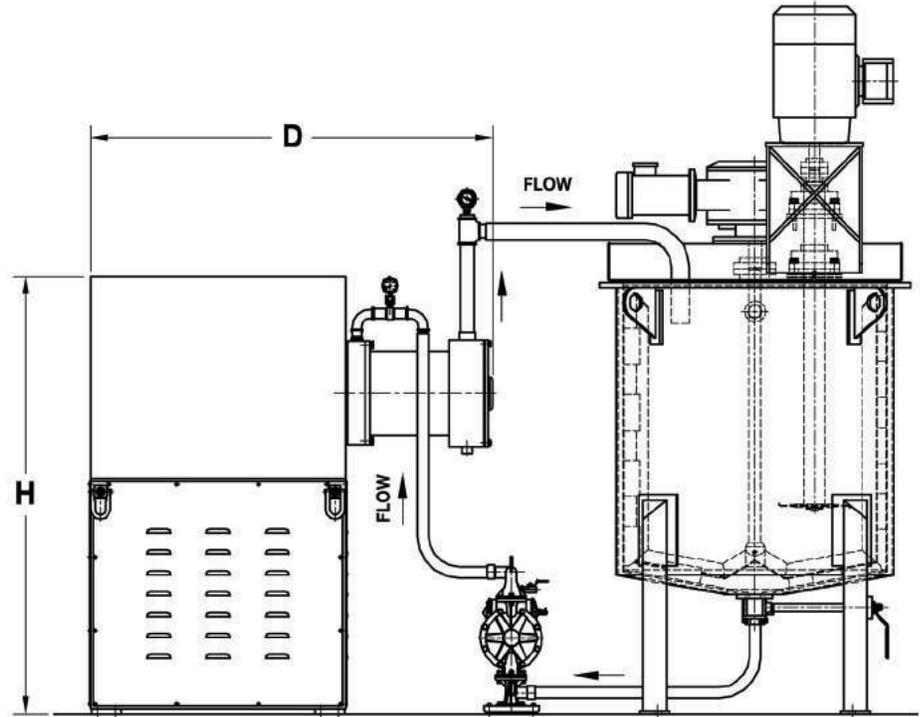
ENGINEERING DATA

| MODEL | LAB MACHINES | | PRODUCTION MACHINES | | | | | |
|--------------------------|--------------|-----------------|---------------------|------------------|-------------------|--------------------|--------------------|--------------------|
| | DMQX-07 | DMQX-2 | DMQX-5 | DMQX-10 | DMQX-20 | DMQX-40 | DMQX-80 | |
| Grinding Tank Capacity | (gals) | 0.20 | 0.53 | 1.32 | 2.64 | 5.28 | 10.57 | 21.13 |
| | (liters) | 0.75 | 2.0 | 5.0 | 10.0 | 20.0 | 40.0 | 80.0 |
| Media Volume | (gals) | 0.11 | 0.27 | 0.66 | 1.40 | 2.77 | 5.63 | 11.25 |
| | (liters) | 0.43 | 1.01 | 2.50 | 5.30 | 10.50 | 21.30 | 42.60 |
| Recommended Holding Tank | (gals) | 0.26-5 | 5-10 | 12-25 | 25-50 | 50-100 | 100-200 | 200-400 |
| | (liters) | 1-20 | 20-40 | 50-100 | 100-200 | 200-400 | 400-800 | 800-1600 |
| Pumping Rate | (GPM) | 0.45 | 0.80 | 2.75 | 6.00 | 12.00 | 24.00 | 48.00 |
| Motor Capacity | (hp) | 5-7.5 | 7.5-10 | 10-15 | 20-25 | 40-50 | 75-100 | 100-125 |
| | (kW) | 4-5.5 | 5.5-7.5 | 7.5-11 | 15-18.5 | 30-37 | 55-75 | 75-90 |
| Speed | (rpm) | Max. 2900 | Max. 2000 | Max. 1500 | Max. 1200 | Max. 900 | Max. 700 | Max. 600 |
| Dimensions D x W x H | (in.) | 30 x 21 x 34 | 34 x 26 x 44 | 38 x 32 x 50 | 48 x 34 x 55 | 62 x 40 x 60 | 66 x 50 x 70 | 86 x 55 x 80 |
| | (mm) | 760 x 535 x 865 | 865 x 660 x 1120 | 965 x 810 x 1270 | 1220 x 865 x 1400 | 1575 x 1015 x 1525 | 1670 x 1270 x 1780 | 2190 x 1400 x 2030 |
| Weight | (lbs.) | 300 | 900 | 1400 | 1800 | 2400 | 5000 | 6500 |
| | (kg) | 135 | 410 | 635 | 820 | 1090 | 2270 | 2950 |

GRINDING MEDIA

Union Process offers a large selection of the highest quality grinding media. Most are available in different sizes to meet your specific grinding requirements.

A Union Process representative can advise you about which grinding media is best for your application.



UNION PROCESS®

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