



# The Ultimate In Small Media Milling Versatility





## A Hybrid of Small Media and Circulation Grinding

As the company that first introduced Circulation Grinding 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 Small Media Milling. The DMQ-Mill<sup>™</sup> was designed to do just that.

# 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.

# **How Circulation Grinding Works**

The circulation grinding method involves a grinding mill (in this case, the DMQ-Mill<sup>™</sup> Small Media Milling System) and a large process/ holding tank which is typically about 10-20 times the size of the mill's grinding chamber. This large 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 DMQ-Mill<sup>™</sup> has a special media separator with a large, open discharge area to help facilitate this high flow rate.



## **Features/Benefits**

- Operates in either circulation or continuous mode
- Discs can be either hardened steel, 440C stainless steel, plastic or zirconium oxide
- Separator rings can be either hardened steel, 440C stainless steel or zirconium oxide
- Grinding chamber can be either 304 stainless steel, polyurethanelined or ceramic. Lab mill also available in zirconium oxide
- Cartridge-type double mechanical seal for easy maintenance
- Easily adjustable product discharge openings maximize throughput and accommodate grinding media from 1mm to as small as .3mm



Proprietary design of Delta discs eliminates shaft whip and mill vibration, while providing greater random media motion for improved milling efficiency.

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- Large, heavy-duty media separator located at the end of the mill makes service fast and easy
- Indexed discs provide directed and uniform media distribution throughout the mill chamber
- Production-sized mills include rail systems for easy maintenance and tank removal
- Variable frequency drives are standard
- Systems can be adapted for data acquisition
- Installation requires no anchor bolts or special foundation



### **DMQ-Mill Laboratory Mill**

This lab mill is an ideal size for testing small amounts of material. Results from the DMQ-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.

- Explosion-proof models available
- Interchangeable grinding tanks, discs and screens allow for easy changeover to metal-free grinding, if required

ENGINEERING DATA							
Model		DMQ-07	DMQ-2	DMQ-5	DMQ-10	DMQ-20	DMQ-40
Media Volume	(liters)	.43	.95	3.4	5.6	13.8	28.5
Speed	(rpm)	Max. 3800	Max. 3000	Max. 2200	Max. 1800	Max. 1400	Max. 1100
Motor Capacity	(hp) (kW)	3 2.2	5-7.5 3.7-5.5	7.5-10 5.5-7.5	15-20 11-15	30-40 22-30	60-75 45-56
Holding Tank	(gals.) (liters)	1-5 3.75-20	5-10 20-40	12-25 50-100	25-50 100-200	50-100 200-400	100-200 400-800
Dimensions D x W x H	(in.) (mm)	30 x 21 x 34 760 x 535 x 865	34 x 26 x 44 865 x 660 x 1120	38 x 32 x 50 965 x 810 x 1270	48 x 34 x 55 1220 x 865 x 1400	62 x 40 x 60 1575 x 1015 x 1525	66 x 50 x 70 1670 x 1270 x 1780
Weight	(lbs.) (kg)	300 135	900 410	1400 635	1800 820	2400 1090	5000 2270
		- Lab Machines -		- Production Machines -			



#### **Grinding Media**

Union Process offers a large selection of 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.



For information on our broad line of grinding and dispersing equipment, please visit our website at www.unionprocess.com.



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#### **Expanding the Possibilities for Size Reduction**

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