

 UNION PROCESS[®]



**CIRCULATION
MODE**

QC-MILL[™]
SMALL MEDIA MILL

Revolutionary Circulation Design De High Efficiency, High Quality Grindin

The QC-MILL is a totally different concept in small media milling. Using a circulation-type process, the flow direction is matched to the centrifugal direction. The specially designed rotor of the QC-Mill creates strong centrifugal and shearing force inside the mill. These forces, combined with the fast circulation rate of the slurry, result in excellent and efficient grinding with sharp particle size distribution.

The Problem With Conventional Mills

Conventional horizontal mills exhibit a weak, slower flow towards the center of the mill and a strong, faster flow in the outer portion of the mill. This lack of uniform grinding creates poor grinding efficiency, increased wear of mill parts and can result in coarse material being left in the product. Therefore, operating costs are high and grinding speed is slow.

What Makes The QC-Mill Different?

With the QC-Mill, media is evenly distributed at the outside of the rotor, creating even shear forces. In fact, the strong centrifugal force of the rotor and special screen design make using mini media ideal with the QC-Mill. Since the



Model QC220

rotor acts like a centrifugal pump, there are some applications where the use of an additional pump may be eliminated. The media separator, located at the outer rim of the milling chamber, has a unique design that provides a large open area through which slurry can easily pass. With media able to move freely, there is less wear on the mill parts, and milling efficiency is increased.



Model QC650

Delivers High Performance, Long Life & Dispersing

An Innovative Mill Creates Exciting New Product Opportunities

With the ability to grind raw material to micron or even submicron size, paints and inks can have more gloss, and color strength can be improved. In addition, special properties of some products can be enhanced.



“Easy Access” Design

Cleaning the grinding chamber and servicing the rotor are easily accomplished by simply opening the door to the grinding chamber.

Benefits

- Larger discharge area allows for higher flow circulation
- Provides narrow particle size distribution
- Strong shear force of the mill improves grinding efficiency
- Lower media cost since only a small amount of media is required
- Unique separator design allows for use of media as small as 0.1mm
- Additional material can be added during grinding
- Contaminants are minimized due to low wear of grinding media and mill parts
- Uses less energy—easy to clean and maintain
- Metal-free models are available

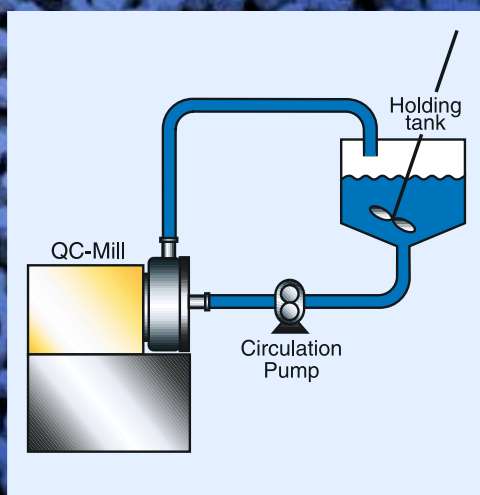


Model QC100

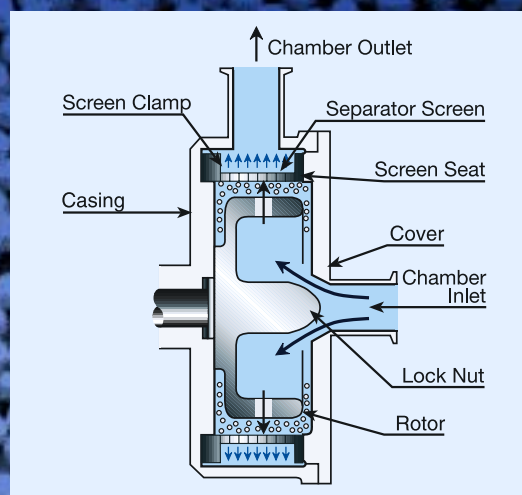
The QC100 Laboratory Mill

This lab mill is an ideal size for testing small amounts of material. Results from the QC100 may be scaled-up to production size models. The QC100 comes complete with holding tank and circulation piping.

Centrifugal force is generated by rotation of the rotor. The media and slurry are accelerated out towards the screen. At the screen, the slurry passes through while the media moves to the outside, then down to be re-accelerated.



The Circulation System of the Union Process QC-Mill



A Look Inside The QC-Mill

ENGINEERING DATA

Model	QC50	QC100	QC150	QC220	QC320	QC450	QC650
Media Volume (Liters)	0.01	0.26	0.85	1.87	5.7	15.0	45.3
Speed (rpm)	Max. 3600	Max. 3300	Max. 2200	Max. 1500	Max. 1000	Max. 700	Max. 500
Motor Capacity (HP) (kW)	.5 0.4	5 3.7	7.5 5.5	15-20 11-15	30-40 22-30	50-75 37-55	125-130 90-97
Holding Tank (Gals) (Liters)	.25-5 1-2	1-5 4-20	3-15 10-50	15-50 50-200	25-150 100-500	50-400 200-1500	150-1200 600-4500
Dimensions (in.) D x W x H (mm)	25 x 12 x 14 640 x 300 x 350	43 x 18 x 43 1100 x 450 x 1100	29 x 24 x 51 730 x 600 x 1300	35 x 30 x 51 880 x 750 x 1300	47 x 30 x 57 1200 x 750 x 1450	75 x 57 x 71 1900 x 1450 x 1800	99 x 138 x 63 2500 x 3500 x 1600
Weight (lbs.) (kg)	66 30	330 150	794 360	1433 650	2160 980	5070 2300	11000 5000

QC-MILL OPTIONS

Model	HC	DWG (Fig. 1)		STD	YTZ	Material (List 1)		PU*	PU (WC)*	Explosion-proof Type	
		VB	HB			YTZ (WC)	TEFC			E	
QC50	Std	N/A	N/A	Std	Optional	Optional	N/A	N/A	Std	N/A	
QC100	Std	N/A	N/A	Std	Optional	Optional	Optional	Optional	Std	Optional	
QC150	Optional	Std	Optional	Std	Optional	Optional	Optional	Optional	Std	Optional	
QC220	Optional	Std	Optional	Std	Optional	Optional	Optional	Optional	Std	Optional	
QC320	N/A	Std	Optional	Std	Optional	Optional	Optional	Optional	Std	Optional	
QC450	N/A	N/A	Std	Std	N/A	Optional	N/A	Optional	Std	Optional	
QC650	N/A	N/A	Std	Std	N/A	N/A	Optional	Optional	Std	Optional	

*Optional, but PU type is not used with solvents. Therefore, type PU is not used with explosion-proof motors except in special cases.

N/A = Not Available

Order # Example: "Model-Dwg-Material-Explosion-proof Type" or "QC220-VB-YTZ-TEFC"

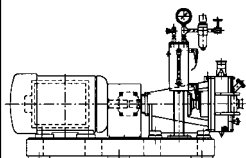
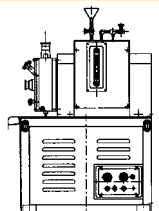
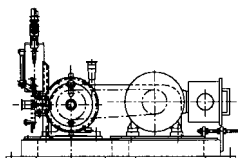
LIST 1: MATERIAL

Symbol	Main Materials in Contact with Slurry	Screen	Screen Clamp and Seat	Rotor	Lock Nut	Casing/Cover	Chamber Inlet and Outlet	Mechanical Seal
STD	Tool Steel/WC Coated	Tool Steel*	WC Coated	Tool Steel*	WC Coated	WC Coated	Stainless Steel (304SS)	Viton
YTZ	Zirconium (YTZ)	YTZ	YTZ	YTZ	YTZ	WC Coated	Stainless Steel (304SS)	Viton
YTZ(WC)	Zirconium (YTZ)/Tungsten Carbide (WC Coated)	YTZ	WC Coated	YTZ	WC Coated	WC Coated	Stainless Steel (304SS)	Viton
PU	Polyurethane/YTZ	YTZ	PU Lining	PU Lining	PU Lining	PU Lining	Stainless Steel (304SS)	Viton
PU (WC)	Polyurethane/Tungsten Carbide	WC Coated	WC Coated	PU Lining	PU Lining	PU Lining	Stainless Steel (304SS)	Viton

*Can also be produced in 440C stainless steel.

Note: Materials of construction for the piping and O-rings of the mechanical seal shall be in accordance with the slurry properties.

FIG. 1: ASSEMBLY DRAWING

HC	VB	HB
Flat Placement Motor Direct Connection	Two Floor Motor V-belt Connection	Flat Placement Motor V-belt Connection
		



For more information on other Union Process Small Media Mills and a list of available media, request the **DELTA MILL™** brochure and the Grinding Media technical data sheet.

For more information on our complete family of grinding and dispersing equipment, contact Union Process:



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