

Vertical media mills

Product Guide

UNIFORM, ULTRA-FINE MILLING FOR ALL PROCESSES

Simple, reliable and easy to maintain, our vertical media mill is a workhorse for continuous wet milling of aqueous and solvent slurries in a variety of viscosities. They efficiently and uniformly mill product to the required particle or agglomerate size. The smaller and more uniform particle sizes produced by the vertical media mill enables smoother product consistency for better quality, enhanced performance and longer shelf life.

CONTINUOUS MILLING ACTION

The cylindrical chamber of each MorehouseCowles mill is charged with media (grinding beads). Product enters the chamber at the bottom of the vessel and as it rises through the chamber the motion of the disks and grinding media produces impact and shear forces that deagglomerate particles, then it exits through the screen at the top. The particle size of the processed product is dependent on the size and type of media in conjunction with the flow rate. Particle size distribution of less than 1 μ m are standard milling requirements. For maximum milling efficiency and consistency, the product should be pre-dispersed with a high-speed dissolver system before media milling.

SEALED, NON-PRESSURIZED MILLS

MorehouseCowles non-pressurized mills are designed for small media to give you the best of both worlds – a simple, low maintenance design with a modest cost-per-unit for most applications.

PRESSURIZED MILLS: SINGLE-VESSEL

MorehouseCowles single-vessel pressurized mills are the most advanced and versatile mills designed for small media. They are ideal for difficult, high-viscosity material processing applications.



SPECIFICATIONS

SEALED, NON-PRESSURIZED MILL					
	5-5A	7-15A	10-25A	12-30A	18-75A
CAPACITY GAL (LITERS)	- 1.9 (7.19L)	- 5.5 (20.81L)	- 14.8 (56.01L)	- 29 (109.76L)	- 60 (227.1L)
THROUGHPUT GAL/HR*	- 2 - 35	- 35 - 75	- 35 - 225	- 35 - 450	- 70 - 900
MOTOR	5 hp - 3600 RPM, 230/460 volt, 60 Hz, 3 phase - TEFC Class I, Division 1, Group D - Inverter duty motor 4:1 ratio - Premium efficiency	15 hp - 1800 RPM, 230/460 volt, 60 Hz, 3 phase - TEFC Class I, Division 1, Group D (explosion proof) - Inverter duty motor 4:1 ratio - Premium efficiency	30 hp - 1800 RPM, 230/460 volt, 60 Hz, 3 phase - TEFC Class I, Division 1, Group D (explosion proof) - Inverter duty motor 4:1 ratio - Premium efficiency	50 hp - 1800 RPM, 230/460 volt, 60 Hz, 3 phase - TEFC Class I, Division 1, Group D (explosion proof) - Inverter duty motor 4:1 ratio - Premium efficiency	75 hp - 1800 RPM, 230/460 volt, 60 Hz, 3 phase - TEFC Class I, Division 1, Group D (explosion proof) - Inverter duty motor 4:1 ratio - Premium efficiency
DRIVE	- V-belt and sheave - Variable speed via Variable Frequency Drive (VFD/inverter)	- V-belt and sheave - Variable speed via Variable Frequency Drive (VFD/inverter)	- V-belt and sheave - Variable speed via Variable Frequency Drive (VFD/inverter)	- V-belt and sheave - Variable speed via Variable Frequency Drive (VFD/inverter)	- V-belt and sheave - Variable speed via Variable Frequency Drive (VFD/inverter)
SHAFT	- Carbon steel	- Carbon steel	- Carbon steel	- Carbon steel	- Carbon steel
SHAFT SPEED	- 2050 RPM	- 1446 RPM	- 961 RPM	- 840 RPM	- 532 RPM
DISCS	- 3.9375" diameter wear-resistant alloy steel	- 5.625" diameter wear-resistant alloy steel	- 8.25" diameter wear-resistant alloy steel	- 10" diameter wear-resistant alloy steel	- 15.25" diameter wear-resistant alloy steel
PUMP/PRODUCT FEED	- Double diaphragm air driven with control valves				
TYPICAL MEDIA LOAD	- 55-60% of gross volume				
INSTRUMENTATION	- Ammeter: Continuously displays main motor amp draw for optimum efficiency - Hourmeter: Continuously displays operation, production time and media wear - Product temperature gauge on front cover - Product pressure gauge				
UTILITIES REQUIRED	- Electrical power 3 phase - Clean, dry, compressed air at 100 psi/g				
DIMENSIONS	- 54" L X 24" W X 53" H	- 36" L X 27" W X 68" H	- 44" L X 29" W X 87" H	- 52" L X 32" W X 103" H	- 68" L X 48" W X 126" H
SPECIAL FEATURES	- Two separate water jacketed vessels to control temperature - Top hat screen system for easy cleaning and replacement - Flush-mounted dump valve for fast media removal and solvent drain - Single-pass processing for most products - Fully enclosed process chamber - Stuffing box seals the shaft to 3 psig				
SAFETY FEATURES	-				
CONSTRUCTION	- All wetted parts are Carbon steel. All non-wetted parts are painted white, two-part epoxy.				

*Milling throughput is product dependent. Variables, such as viscosity, density, media type and media loading can affect milling throughput.

SPECIFICATIONS

PRESSURIZED: SINGLE-VESSEL MILL					
	5-5P	7-15P	10-25P	12-30P	18-75P
CAPACITY GAL (LITERS)	- 1.9 (7.19L)	- 5.5 (20.81L)	- 16 (60.56L)	- 30 (113.55L)	- 60 (227.1L)
THROUGHPUT GAL/HR*	- 2 - 35	- 35 - 75	- 35 - 225	- 35 - 450	- 70 - 900
MOTOR	5 hp - 3600 RPM, 230/460 volt, 60 Hz, 3 phase - TEFC Class I, Division 1, Group D (explosion proof) - Inverter duty motor 4:1 ratio - Premium efficiency	15 hp - 1800 RPM, 230/460 volt, 60 Hz, 3 phase - TEFC Class I, Division 1, Group D (explosion proof) - Inverter duty motor 4:1 ratio - Premium efficiency	30 hp - 1800 RPM, 230/460 volt, 60 Hz, 3 phase - TEFC Class I, Division 1, Group D (explosion proof) - Inverter duty motor 4:1 ratio - Premium efficiency	50 hp - 1800 RPM, 230/460 volt, 60 Hz, 3 phase - TEFC Class I, Division 1, Group D (explosion proof) - Inverter duty motor 4:1 ratio - Premium efficiency	75 hp - 1800 RPM, 230/460 volt, 60 Hz, 3 phase - TEFC Class I, Division 1, Group D (explosion proof) - Inverter duty motor 4:1 ratio - Premium efficiency
DRIVE	- V-belt and sheave - Variable speed via Variable Frequency Drive (VFD/inverter)	- V-belt and sheave - Variable speed via Variable Frequency Drive (VFD/inverter)	- V-belt and sheave - Variable speed via Variable Frequency Drive (VFD/inverter)	- V-belt and sheave - Variable speed via Variable Frequency Drive (VFD/inverter)	- V-belt and sheave - Variable speed via Variable Frequency Drive (VFD/inverter)
SHAFT	- Carbon steel	- Carbon steel	- Carbon steel	- Carbon steel	- Carbon steel
SHAFT SPEED	- 2050 RPM	- 1446 RPM	- 961 RPM	- 840 RPM	- 532 RPM
DISCS	- 3.9375" diameter wear-resistant alloy steel	- 5.625" diameter wear-resistant alloy steel	- 8.25" diameter wear-resistant alloy steel	- 10" diameter wear-resistant alloy steel	- 15.25" diameter wear-resistant alloy steel
PUMP/PRODUCT FEED	- Gear pump with inverter variable gear drive				
TYPICAL MEDIA LOAD	- 55-60% of gross volume				
INSTRUMENTATION	- Ammeter: Continuously displays main motor amp draw for optimum efficiency - Hourmeter: Continuously displays operation, production time and media wear - Product temperature gauge on front cover - Product pressure gauge - Control station in a NEMA 7 (explosion proof) enclosure includes: pressure gauges, sensors, interlocks, logic circuit, start/stop buttons for main motor, circulator and gear pump; a potentiometer for the gear pump, and status lights for correct start-up sequencing and to provide automatic shutdown in upset conditions, all in a NEMA 7 (explosion proof) enclosure.				
UTILITIES REQUIRED	- Electrical power 3 phase				
DIMENSIONS	- 54" L X 24" W X 53" H	- 48" L X 32" W X 78" H	- 60" L X 46" W X 102" H	- 64" L X 49" W X 114" H	- 69" L X 58" W X 127" H
SPECIAL FEATURES	- Two separate water jacketed vessels to control temperature - Top hat screen system for easy cleaning and replacement - Flush-mounted dump valve for fast media removal and solvent drain - Single-pass processing for most products - Fully enclosed process chamber - Double mechanical shaft seal for 50 psig operation with oil recirculation system and heat exchanger				
SAFETY FEATURES	- High pressure chamber shutdown: all operations shut down if chamber is over pressurized				
CONSTRUCTION	- All wetted parts are carbon steel. All non-wetted parts are painted white, two-part epoxy.				

*Milling throughput is product dependent. Variables, such as viscosity, density, media type and media loading can affect milling throughput.



OPTIONS:

CONSTRUCTION

1. Materials for special applications such as contaminants, abrasives, etc.; polyurethane, ceramic and stainless steel.

VESSELS

1. Multi-vessel configuration is available upon request
2. Dump valve flush-mounted on the bottom of the process chamber, the vessel can be easily emptied of product and media through separate connections.

GRINDING MEDIA

The size and type of grinding media are the two most important factors in the quality and quantity of the product processed in a small media mill. There are numerous types and sizes of media available – consult our media experts for proper requirements. It is the combination of the media and the product that ultimately determines how well your mill performs.

Made in the USA

For more information, visit [morehousecowles.com](https://www.morehousecowles.com) or contact MorehouseCowles experts today at sales@morehousecowles.com or +1 (909) 627 7222.