# HOCKMEYER

## NEXGEN™ VACUUM

## **RECIRCULATION MILLING**

HOCKMEYER

## **TECHNOLOGY**

MILL & DEARATE ... AT ONCE NO AIR, NO BUBBLES, NO FOAM, JUST PRODUCT



 MEYER
 www.hockmeyer.com/nexgen-recirculation-mill/

# HNG VACUUM RECIRCULATION MILLING TECHNOLOGY

Proven excellence in processing dispersions for printing inks, conductive inks, agrochemicals, pharmaceuticals, and energy components down to nanoparticle sizes.

- Increased efficiency; as much as 50 GPM through 2.5 liter mill
- Fast Production & easy cleaning = More batch turnovers
- · High screen surface area to media ratio
- Rapid recirculation for tight particle size distribution
- · Separation of shaft speed and product flow speed
- Designed for small footprint and low ceiling clearances
- Versatile for various batch volumes
- Hook up to any tank, portable or permanent
- Sanitary fittings for fast and easy cleanup

## STANDARD SETUP

- Gravity feed or vacuum feed from the supply tank
- Feed into the upper part of the mill chamber
- · Vacuum feed into the mill chamber
- Material passes through the media field and screen into cooling chamber
- Material passes from the cooling chamber through the diaphragm pump back into supply tank
- Continuous passes through an aggressive shear zone



## MILL CHAMBER

An aggressive field of bidirectional pegs, media, screens and vacuum forces







## **MATERIAL FLOW**

- 1. Material enters below shaft seal
- 2. Material is pulled into media field under vacuum
- Media, pegs & screens attack agglomerates while vacuum expands air bubbles inside agglomerates to break them apart
- Material exits the chamber and returns to the supply tank for the next pass

The air bubbles combine to form a large air pocket that rises to the top of the supply tank and bursts into the atmosphere

## **MILL OPERATION**

- Rotating Pegs spin the media field up to 3000 fpm
- Counter pegs disrupt the media field and stop the media from the effects of centrifugal force
- Shaft rotation speed and material feed are controlled separately
- Diaphragm pump and ball valves control the material feed and vacuum level



## MEDIA FIELD

- Maximum screen open surface area to media ratio
- Rotating & Stationary pegs for maximum shear
- Wide selection of screen sizes to cover all media sizes from 1.5 mm to .03 mm



## AIR ACCUMULATION



- As media breaks down the agglomerate air escapes
- Air accumulates in the upper portion of the cooling chamber
- Once enough air accumulates, it is pulled out through the diaphragm pump as a large slug of air
- The large air bubbles return to the supply tank and rises quickly to the top of the batch and is removed from the feedstock

## **DEAERATION: THE EFFECT OF VACUUM ON AIR BUBBLES**

- When vacuum is pulled on a liquid containing air bubbles, the bubbles will expand
- Under vacuum, bubbles rise to the surface faster than they will at atmospheric conditions
- Removing air trapped inside agglomerates allows for faster wetting with liquids and resins.



# **NEXGEN MILL SIZES & CAPACITIES**

MODEL	BATCH SIZE MIN/MAX (Gal)	MEDIA VOLUME			
MCROMILL	1L-1 Gal	49 mL			
HNG-25	15/50	25L			
HNG-5	35/100	4.5L			
HNG-20	150/400	18.5L			
HNG-60	400/1000	46L			

## AUTOMATED DIGITAL CONTROLS

Automated digital controls allow remote monitoring and control of the mill and formula management.



Data Collection





# HOCKMEYER



### Control Screen examples

### Water Set Point



#### Auto Shutoff



## **CONTROL SCREENS**



### Login

Login	
Jser Name	Login
[F2]	[Enter]
Password	Cancel
[F3]	[Esc]
Result:	

### **Reset Wear Values**



HOCKMEYER www.hockmeyer.com/nexgen-recirculation-mill/

# ASSEMBLY & DISASSEMBLY OF HNG

- Low point drain to ensure all product is removed and piping is empty before removing
- Simple sanitary fittings to remove piping section.
- Remove chamber bolts to fully expose mill chamber to allow for in place cleaning
- Utilization of wash cart allows quick disassembly and changeover of screen sizes.



## **MAINTENANCE/WASH CART**

A must-have for convenience, safety and speed when servicing the NEXGEN Vacuum Recirculation Mill.



Machine disassembly and re-assembly approx. 1/4<sup>th</sup> the time of a horizontal mill



KMEYER www.hockmeyer.com/nexgen-recirculation-mill/

## **HNG Process Time Improvement**

CURRENT PROCESS						HOCKMEYER NEXGEN™				
TEST DATE	MILLED PRODUCT	MODEL	BATCH SIZE (GAL)	GALLONS /MEDIA	PROCESS TIME (HOURS)	MODEL	BATCH SIZE (GAL)	GALLONS/ MEDIA	PROCESS TIME (HOURS)	TIME REDUCTION (%)
2017	INORGANIC BLACK	HORIZONTAL	11	3:1	12	HNG - 2.5	45	20:1	5	93.75%
2018	CALCIUM CARBONATE	VERTICAL SAND	2000	20:1	16	HNG - 2.5	45	20:1	0.75	95.31%
2019	RED OXIDE	HORIZONTAL	600	30:1	168	HNG - 5	96	21:1	4.5	96.23%
2020	CARBON BLACK	HORIZONTAL	500	10:1	6	HNG - 20	180	10:1	1.75	70.80%
2020	CARBON BLACK	HORIZONTAL	200		30	HNG - 5	200			
2020	CARBON BLACK	HORIZONTAL	500	10:1	6	HNG - 60	450	10:1	1.75	70.80%
2020	YELLOW/RED PIGMENT BLEND	HORIZONTAL 20L	250	17:1	2	HNG - 5	50	10:1	0.75	34.50%
2020	PTHALO BLUE	HORIZONTAL 20L	250	17:1	7	HNG - 5	50	10:1	2	50%
2021	CARBON BLACK	HORIZONTAL 60L	580	12:1	4	HNG - 20	180	10:1	1.5	55%
2021	IRON BLUE	HORIZONTAL 60L	415	22:1	4.5	HNG - 20	180	10:1	1.75	14.40%
2021	INKJET RED	HORIZONTAL 20L	450	22:1	7	HNG - 20	180	10:1	0.5	84.30%

## **NEXGEN LINEUP**





## **FOR MORE INFORMATION**

### HOCKMEYER EQUIPMENT CORPORATION

6 Kitty Hawk Lane Elizabeth City, NC 27909

