



YOU THINK IT'S  
IMPOSSIBLE?  
TOGETHER, WE'LL  
DO IT!

for R&D and Institutions

WE CARE  
ABOUT YOU

[WWW.FREWITT.COM](http://WWW.FREWITT.COM)



# FLEXMILL-LAB

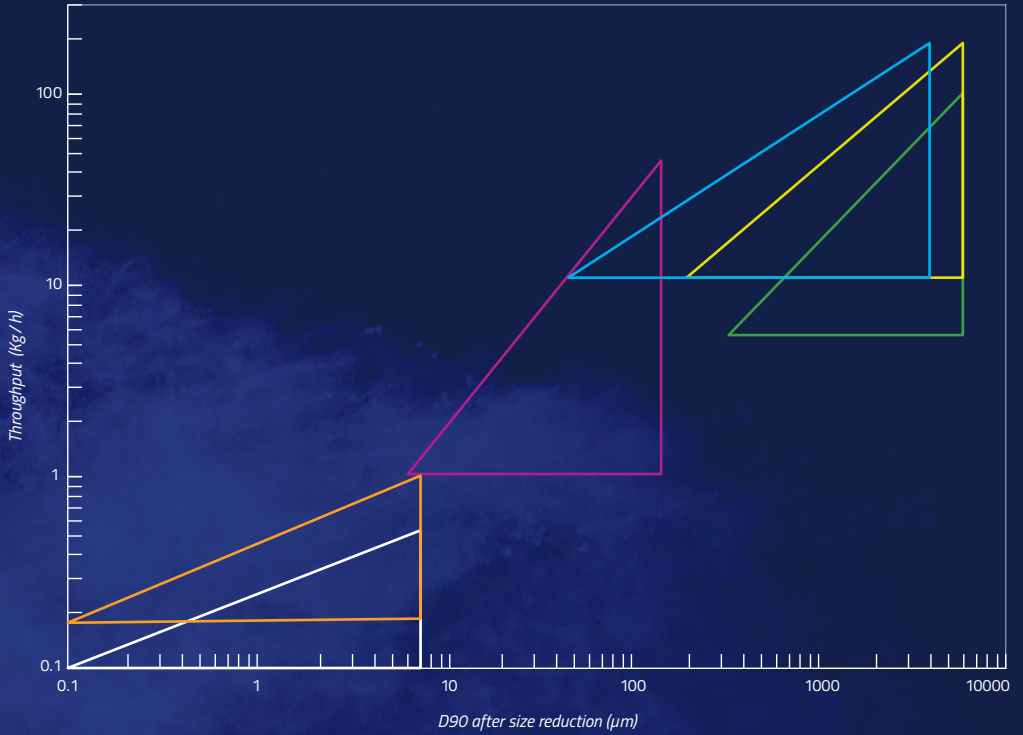
NW, PM-160, HW-1, CW-50, SW-50 & OW-1

**FREWITT, world leader in the powder size reduction sector, is committed to supporting R&D labs, pharmaceutical institutions and technical training centers. Assisting closely our insitutional partners to achieve their process and developmental goals.**

**FlexMill-Lab, with its technical characteristics and unrivaled modularity (1 equipment, 6 heads) is the ideal tool for the development of your processes and various product researches.**

With Frewitt, save time, space and money while increasing process and product knowledge.

# PRODUCT RANGE



- FlexMill-Lab **NW-100**
- FlexMill-Lab **NW-250**
- FlexMill-Lab **PM-160**
- FlexMill-Lab **OW-1**
- FlexMill-Lab **CW-150**
- FlexMill-Lab **HW-1**





# FLEXMILL-LAB NW

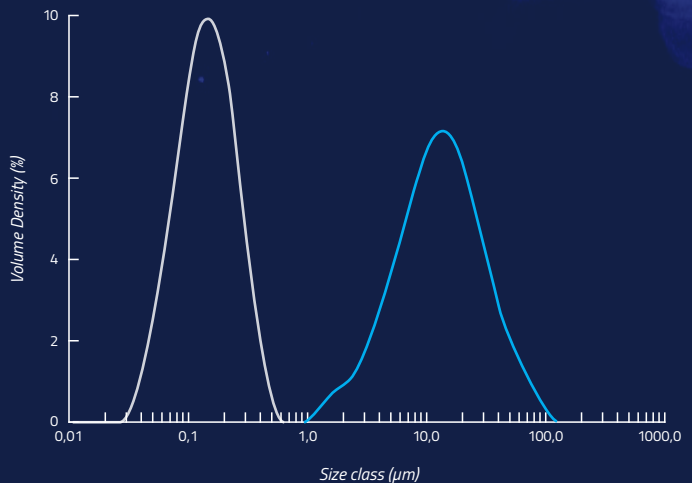
The FlexMill-Lab NW is high-performance bead mill engineered specifically for wet nano milling of pharmaceutical products.

Product	D50 / D90 before milling	Mill	D50 / D90 after milling	Throughput
Naproxen	13µm/39µm	FlexMill-Lab NW-100	144nm/298nm	75 g*/h
Rutin	3µm/10µm	FlexMill-Lab NW-100	178nm/371nm	8.5 g*/h
Lithium manganese oxide	14µm/46µm	FlexMill-Lab NW-100	113nm/327nm	5 g*/h

\*Weight of solid

## Test product: Naproxen

Sample name	Before milling	After milling
Dx (10) (µm)	4.19	0.0665
Dx (50) (µm)	13.2	0.144
Dx (90) (µm)	39.2	0.298





# FLEXMILL-LAB PM-160

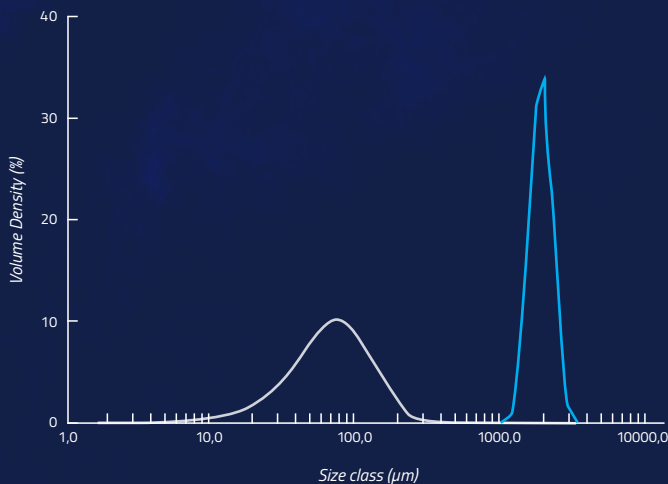
The FlexMill-Lab PM-160 is a high-performance pin mill designed for pulverizing hard or crystalline products.

Product	D50 / D90 before milling	Mill	D50 / D90 after milling	Throughput
PLGA	1890 $\mu$ m/2340 $\mu$ m	FlexMill-Lab PM 160/ Cryogenic	67 $\mu$ m/138 $\mu$ m	9 kg/h
Diclofenac sodium	15 $\mu$ m/57 $\mu$ m	FlexMill-Lab PM 160	2.7 $\mu$ m/7.1 $\mu$ m	3 kg/h
DuPont Polymer pellets	4mm/5mm	FlexMill-Lab PM 160/ Cryogenic	114 $\mu$ m/312 $\mu$ m	1.2 kg/h

## Test product:

PLGA

Sample name	Before milling	After milling
Dx (10) ( $\mu$ m)	1510	26.1
Dx (50) ( $\mu$ m)	1890	67.3
Dx (90) ( $\mu$ m)	2340	138





# FLEXMILL-LAB PM-160

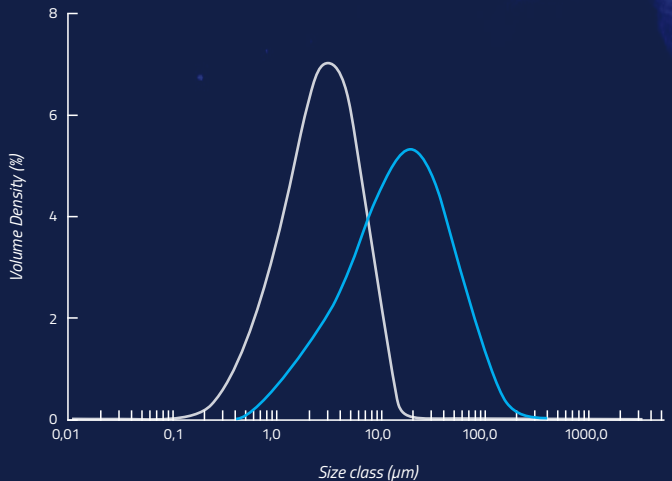
The FlexMill-Lab PM-160 is a high-performance pin mill designed for pulverizing hard or crystalline products.

Product	D50 / D90 before milling	Mill	D50 / D90 after milling	Throughput
PLGA	1890 $\mu$ m/2340 $\mu$ m	FlexMill-Lab PM 160/ Cryogenic	67 $\mu$ m/138 $\mu$ m	9 kg/h
Diclofenac sodium	15 $\mu$ m/57 $\mu$ m	FlexMill-Lab PM 160	2.7 $\mu$ m/7.1 $\mu$ m	3 kg/h
DuPont Polymer pellets	4mm/5mm	FlexMill-Lab PM 160/ Cryogenic	114 $\mu$ m/312 $\mu$ m	1.2 kg/h

## Test product:

Diclofenac sodium

Sample name	Before milling	After milling
Dx (10) ( $\mu$ m)	2,72	0,79
Dx (50) ( $\mu$ m)	15,2	2,67
Dx (90) ( $\mu$ m)	57,4	7,06





# FLEXMILL-LAB HW-1

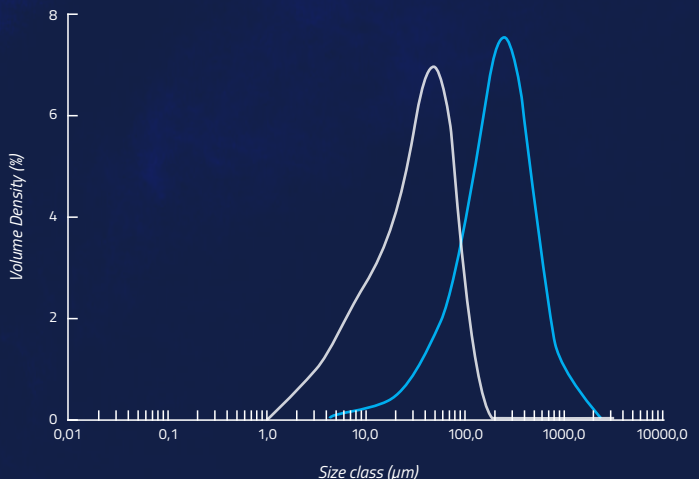
The FlexMill-Lab HW-1 is a high-performance hammer mill, designed for the milling and pulverization of hard, crystalline, as well as fibrous products.

Product	D50 / D90 before milling	Mill	D50 / D90 after milling	Throughput
Taurine	222 $\mu$ m/652 $\mu$ m	FlexMill-Lab HM-1	31 $\mu$ m/81 $\mu$ m	20 kg/h
Hydroxypropyl Methylcellulose	258 $\mu$ m/555 $\mu$ m	FlexMill-Lab HM-1	142 $\mu$ m/309 $\mu$ m	8 kg/h
Brivaracetam	1090 $\mu$ m/2250 $\mu$ m	FlexMill-Lab HM-1	167 $\mu$ m/432 $\mu$ m	13 kg/h

## Test product:

Taurine

Sample name	Before milling	After milling
Dx (10) ( $\mu$ m)	59.3	4.17
Dx (50) ( $\mu$ m)	222	30.9
Dx (90) ( $\mu$ m)	652	80.5





# FLEXMILL-LAB CW-50

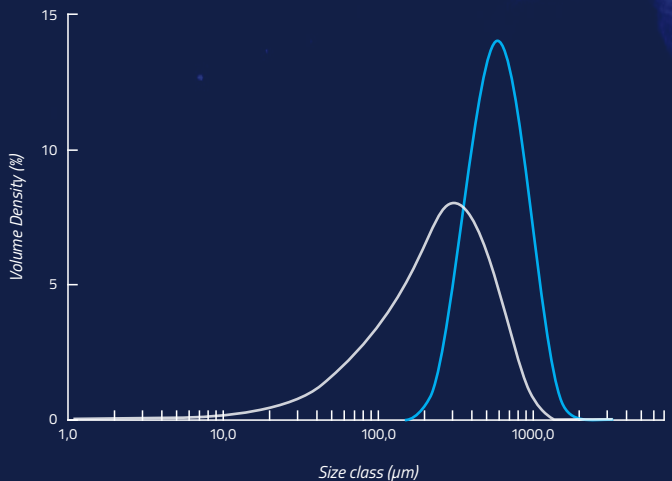
The FlexMill-Lab CW-50 is a high-performance, conical sieve mill that is used for the sizing and des-agglomeration of all types of dry and wet powder products.

Product	D50 / D90 before milling	Mill	D50 / D90 after milling	Throughput
Tripotassium Citrate	580 $\mu$ m/972 $\mu$ m	FlexMill-Lab CW-50	248 $\mu$ m/578 $\mu$ m	40 kg/h
Glucagon	17 $\mu$ m/47 $\mu$ m	FlexMill-Lab CW-50	17 $\mu$ m/47 $\mu$ m	25 kg/h
Ethyl cellulose	2 mm/4mm	FlexMill-Lab CW-50	647 $\mu$ m/1172 $\mu$ m	61 kg/h

## Test product:

Tripotassium Citrate

Sample name	Before milling	After milling
Dx (10) ( $\mu$ m)	336	64.4
Dx (50) ( $\mu$ m)	580	248
Dx (90) ( $\mu$ m)	972	578







# FLEXMILL-LAB SW-50

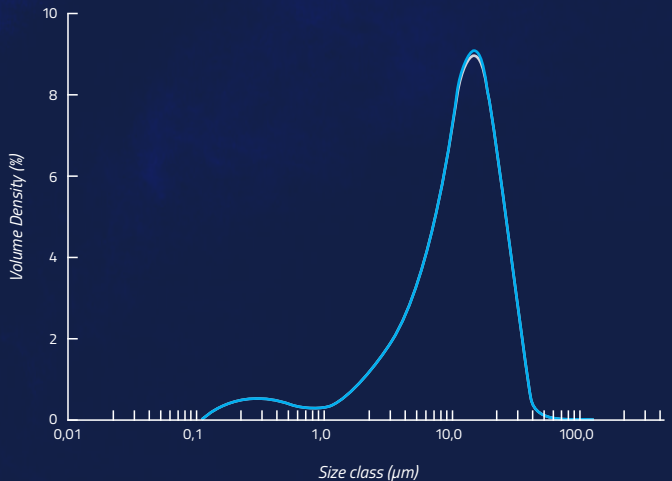
The FlexMill-Lab SW-50 is a cylindrical mill with a rotating sieve drum designed for the des-agglomeration and homogenisation of all types of dry and wet powders.

Product	D50 / D90 before milling	Mill	D50 / D90 after milling	Throughput
Magnesium stearate	7µm/35µm	FlexMill-Lab SW-50	7 µm/35µm	32 kg/h
Tenapanor Hydrochloride	11µm/24µm	FlexMill-Lab SW-50	11µm/24 µm	18 kg/h
Lactose monohydrate	195µm/397µm	FlexMill-Lab SW-50	194µm/387µm	34 kg/h

## Test product:

Tenapanor Hydrochloride

Sample name	Before de-agglomeration		After de-agglomeration	
	Before	After	Before	After
Dx (10) (µm)	2.45	2.45		
Dx (50) (µm)	11.4	11.4		
Dx (90) (µm)	24.0	23.8		





# FLEXMILL-LAB OW-1

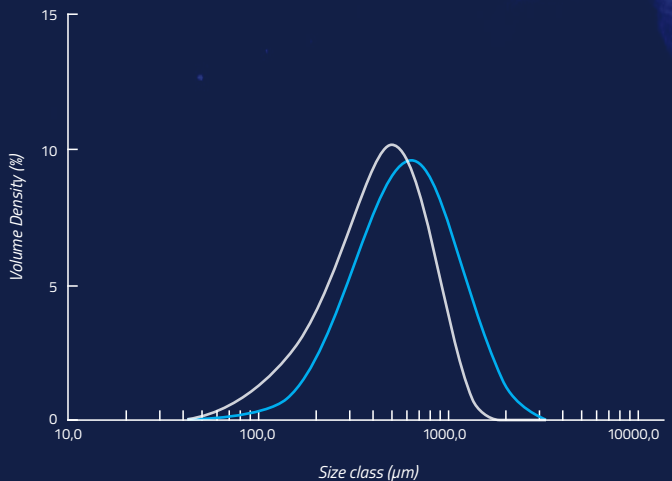
The oscillating and rotating FlexMill-Lab OW-1 sieve mill is designed for the milling of difficult-to-process, as well as heat-sensitive products requiring uniform particle-size distribution.

Product	D50 / D90 before milling	Mill	D50 / D90 after milling	Throughput
Sodium bicarbonate	595µm/1270µm	FlexMill-Lab OW-1	426µm /835µm	20 kg/h
Cannabis	6mm/10mm	FlexMill-Lab OW-1	646µm/941µm	3 kg/h
Carrot flavoring	2mm/5mm	FlexMill-Lab OW-1	136µm/382µm	13 kg/h

## Test product:

Sodium bicarbonate

Sample name	Before milling	After milling
Dx (10) (µm)	252	149
Dx (50) (µm)	595	426
Dx (90) (µm)	1270	835



### FlexMill-Lab NanoWitt Lab



### FlexMill-Lab HW-1



### FlexMill-Lab Pin Mill-160



On a mobile stand



With a ProFi-Clean  
(possibility to add some modules)



Isolator intergration with active inertisation  
and oxygen control option



In addition to a lab-scale mills, customers also order production-scale machines from Frewitt. Frewitt satisfies your requirements, from lab, to pilot, to production, always ensuring complete scalability.

## FlexMill-Lab OW-1



Machine equipped with transformer, for one of our US customers



Customized mobile skid



Customized mobile stand



Compact table machine

## WORLDWIDE PRESENCE



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