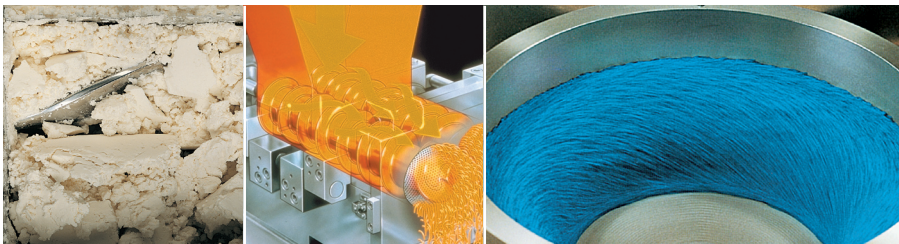
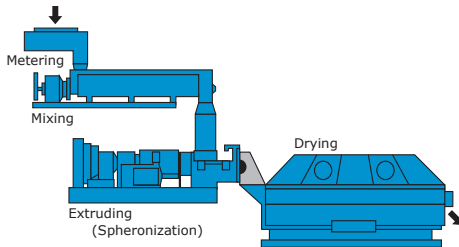


Wet Granulation by Extrusion (continued)

- Capacities from 1 kg/h to 6.000 kg/h
- Controlled release pharmaceutical spheres produced by extrusion/ spheronization
- Extruded products are virtually dustfree, have improved flow properties and have an increased bulk density, solution and dispersion rate



One partner with total responsibility

Fitzpatrick stands for high value industrial milling and granulation systems which fulfill all international standards and specific requirements of the pharmaceutical, chemical and food industry. The combined technologies of Fitzpatrick and Fuji Paudal provide a unique combination of both wet and dry granulation.

Whether your requirements will involve dust free milling, roll compaction, low pressure extrusion or spheronization, our Process Competence Center in Sint-Niklaas, Belgium, is fully equipped with the personnel, test units and know-how to find the optimal solution to meet your most stringent process requirements.

Product Overview

Process	Application	Equipment type	Brand name	Capacity range
Dry Granulation	Size Reduction	Impact mill	Fitz®Mill	0,05-10.000 kg/h
		Gentle mill	Fitz®Mill with Bar Rotor	0,05-1.500 kg/h
		Conical mill	Fitz®Sieve	0,05-1.500 kg/h
		Classifier mill	Fitz Classifier Mill	0,05-10.000 kg/h
	Size Enlargement	Roll compactor	Chilsonator®	0,1-5.000 kg/h
		Briquetter	Industrial Roll Press	2.000-16.000 kg/h
Wet Granulation	Kneading	Batch	KD(H)(A)(J)	1-300 l/batch
		Continuous	CKD(L)	150-9.500 l/h
	Extrusion	Frontal	EXDF(S)	50-800 kg/h
		Radial	EXD(C)(S)	50-1.000 kg/h
		Basket	BR	100-1.500 kg/h
		Dome	TDG	30-6.000 kg/h
	Spheronization	Spheronizer	Marumerizer® Q(J)	1-50 l/batch

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Partners in Process Technology

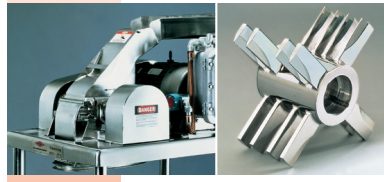


The Particle Engineering Company

Controlled Particle Size Reduction



Comminuting has evolved into more than hammer milling or grinding. The Fitzpatrick Company has perfected the Fitz®Mill comminution equipment not only to precise control the particle size reduction, but also to eliminate explosion risk and to guarantee operator safety.



- Reduced explosion hazard with milling in an inert atmosphere (ATEX)
- Customized design to suit your specific process needs
- Automated controls, if required designed to be compliant to GAMP5.0 and 21 CFR part 11

- Size reduction for the pharmaceutical, food and chemical industries
- Capacities from 50 g to 10 tons/h
- A wide range of blades and screens available
- cGMP and CIP designs for the pharmaceutical applications
- Product Containment System for toxic and hazardous products

Model	Capacity in kg/h
L1A	0,05 - 20
M5A	10 - 150
D6A	100 - 500
DASO6	100 - 800
FASO8	180 - 1.400
DASO12	250 - 1.800
FASO12	280 - 2.200
FASO20	480 - 4.000
HASO30	900 - 10.000

Particle calibration by gentle milling



A bar rotor with a rasping screen can be applied on the Fitzmill for low energy milling. The FitzSieve on the other hand, is a conical mill with a simple and accurate incremental adjustment rotor-to-screen clearance.

- Capacities from 50 g up to 40 tons/h
- GMP and easy cleanable underdrive design for the Conical mill
- Bar rotor and rasping screen applicable on the standard Fitzmill range
- Wet and Dry Size Reduction for the Pharmaceutical, Food and Chemical Industries
- Compact cGMP design
- Low dusting, low heat generation

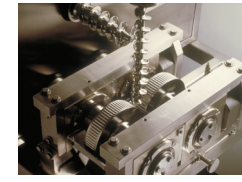
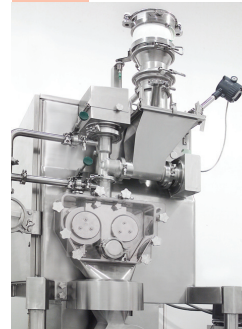
Model	Capacity in kg/h
FS-75	0,05 - 20
FS-200	20 - 5.000
FS-600	5.000 - 40.000
L1A (bar rotor)	0,1 - 20
M5A (bar rotor)	1 - 250
D6A (bar rotor)	5 - 500
DKAS012 (bar rotor)	20 - 1.500

Dry Granulation by Roll Compaction



Fine powders can be processed into densified sheets in the Chilsonator® roll compactor by the use of mechanical pressure exerted on two counterrotating rolls. The densified sheets can then be granulated to any desired particle size distribution.

- Roll compaction for the pharmaceutical, food and chemical industries
- Capacities from 100 g to 5 tons/h
- Complete granulation lines and fully integrated systems are available
- Optional vacuum deaeration system
- cGMP and WIP designs for the pharmaceutical applications
- Product Containment and Inert Atmosphere System for toxic and hazardous products (ATEX)
- Automated controls, if required designed to be compliant to GAMP5.0 and 21 CFR part11



Model	Capacity in kg/h
IR-220	0,1 - 20
IR-520	20 - 150
IR 4Lx10D	75 - 225
4B 4Lx10D	75 - 225
7Lx10D	225 - 450
12Lx12D	450 - 1.250
12Lx16D	1.250 - 2.250
IRP-1250	2.000 - 7.000
IRP-2550	4.000 - 16.000

Productivity and safety are our concern

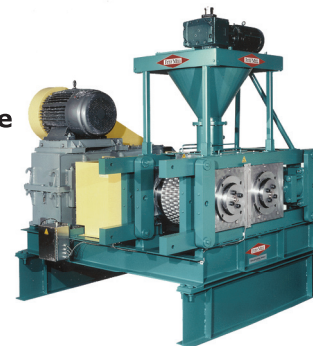
Briquetting



The Industrial Roll Press is an example of Fitzpatrick's commitment to high capacity, heavy duty equipment. Installation flexibility, easy maintenance and a variety of feed methods characterize this series of roll presses for compaction and briquetting.

- Different feed systems:
 - Gravity
 - Conical
 - Twin feed screw

- Optional vacuum deaeration system
- Easy access to operating mechanism due to pivoting feed system



Micronizer - Classifier Mill



The air classifier mill is designed to provide size reduction with an integrated classifier to ensure the desired product is delivered to the equipment outlet. The mill's operating principle is mechanical-impact size reduction, which minimizes the operating energy costs.



- Flexible process to manufacture a specific particle size range
- cGMP design for the pharmaceutical industry
- PSR design for milling hazardous products or in an inert atmosphere (ATEX)
- QC - Quick Clean and wear resistant designs for the chemical and food industry

Model	Mill chamber (mm)	Rotor drive (kW)	Classifier drive (kW)	Rotor RPM	Required airflow (m³/h)
FCM 100*	100	1.1	0.37	10.000 - 24.000	80
FCM 200*	200	2.2	0.75	6.000 - 12.500	400
FCM 350*	350	15	2.2	3.000 - 8.500	1.400
FCM 500	500	30	5.5	2.500 - 5.000	2.600
FCM 650	650	45	7.5	2.000 - 4.200	4.500
FCM 800**	800	75	11	1.500 - 3.200	6.500
FCM 1000**	1000	132	15	1.000 - 2.600	12.000
FCM 1400**	1400	250	30	1.000 - 1.850	22.000

* These Classifier Mills are suitable for pharmaceutical application, and have a QC (Quick Clean) design.
** These Classifier Mills are single body.

Wet Granulation by Extrusion



Our extruders are designed for low pressure and low temperature operation, ideal for heat sensitive compounds. They require minimum amounts of liquids which result in energy saving shorter drying times.



- cGMP designs for the pharmaceutical applications
- Uniformity in shape and size, with a very narrow particle size distribution
- Production of water dispersible granules for the agrochemical industries



Quality results at the highest efficiency