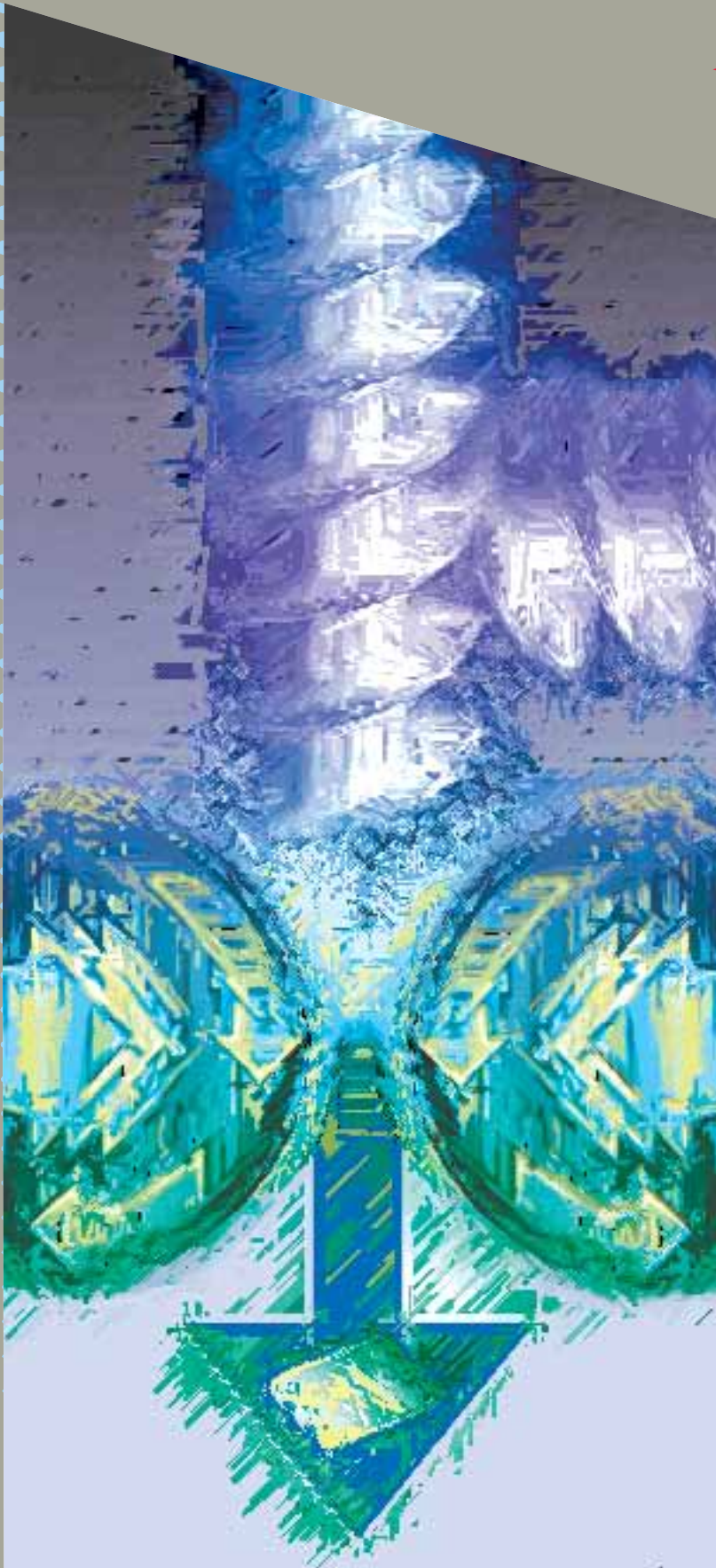


DRY GRANULATION

MODEL IR520

CHILSONATOR®



**THE
FITZPATRICK
COMPANY**

MODEL IR520 CHILSONATOR®

PROCESS VERSATILITY WITH GMP DESIGN

The Chilsonator roll compactor is recognized worldwide as the industry leader for dry granulation. Roll compaction equipment increases powder density and produces free-flowing granules.

The IR520 Chilsonator is designed to provide the ultimate process flexibility for a wide variety of products. Fitzpatrick machines are designed to be quickly dismantled and cleaned in order to meet sanitary and cGMP requirements. Accurate repeatable results make this equipment ideal for the most critical applications.



FREE-STANDING OR PORTABLE

The IR520 can be installed as a free-standing or portable machine. All technical components are enclosed and isolated from the process area. The controls are separate from the machine and can be wall mounted or portable.

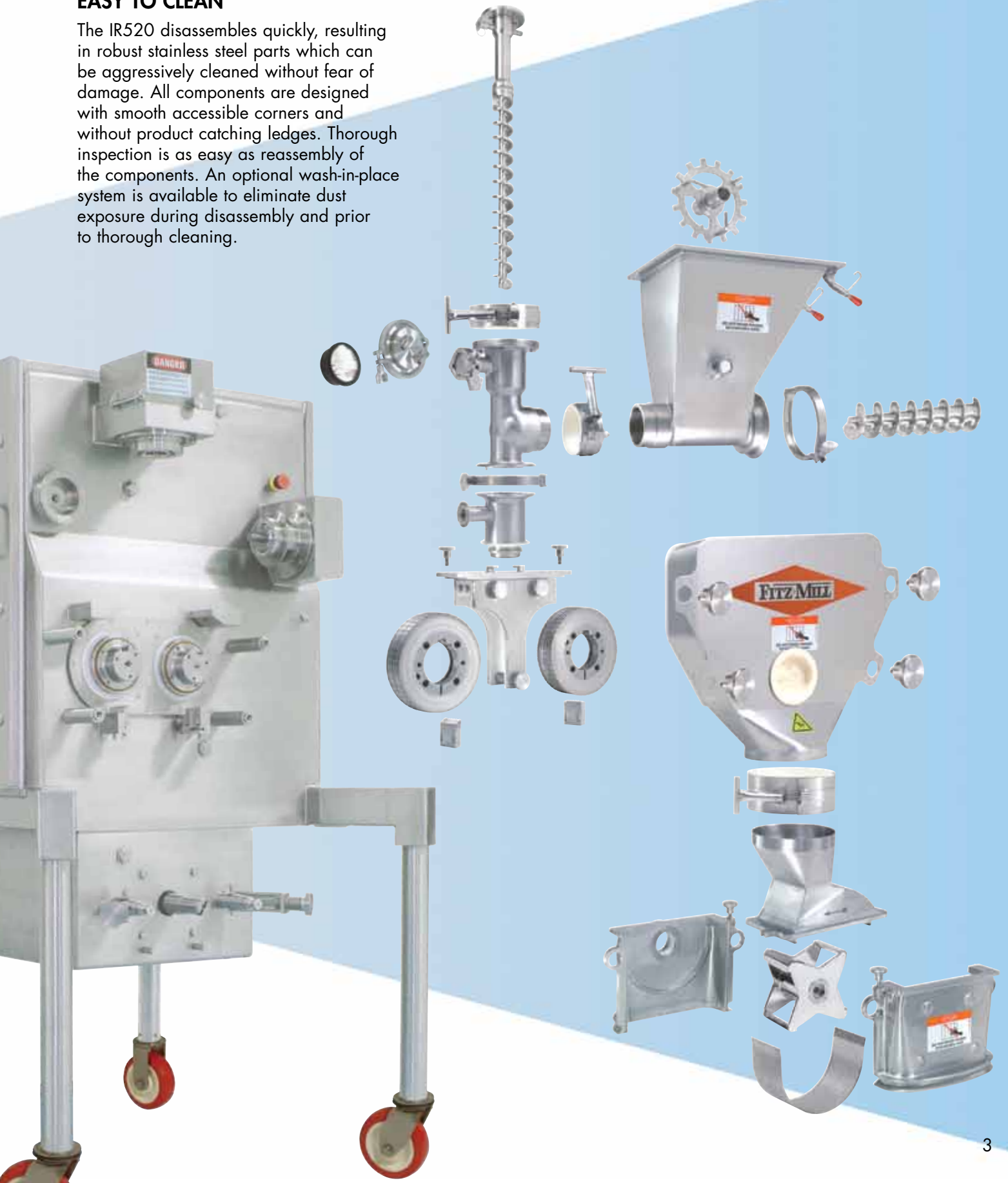
"IN-WALL" DESIGN

The in-wall design separates the product contact parts, located in the processing room, from the mechanical components located in the technical room (see page 7).



EASY TO CLEAN

The IR520 disassembles quickly, resulting in robust stainless steel parts which can be aggressively cleaned without fear of damage. All components are designed with smooth accessible corners and without product catching ledges. Thorough inspection is as easy as reassembly of the components. An optional wash-in-place system is available to eliminate dust exposure during disassembly and prior to thorough cleaning.



PROCESS EFFICIENCY & AUTOMATION

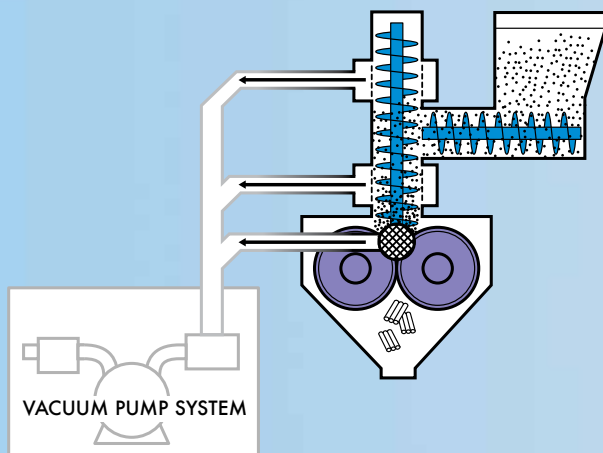
THE IR520 can be configured with numerous features and options in order to process a wide variety of applications. Installing these customized features is easy since most components disassemble with hand fasteners.

FEED SYSTEM

The Fitzpatrick feed system delivers material to the rolls utilizing a feed hopper, horizontal feed screw for metering material, and a vertical pre-compression screw for pre-compression, deaeration, and transport of feed material to the compaction rolls.

The high speed vertical pre-compression feed screw is very effective at deaerating a vast majority of powders. Even many low bulk density powders are able to be effectively conditioned for efficient compaction. This feed system design provides significant process advantages with few components to clean and maintain.

In a few applications, the material characteristics restrict the ability of the entrained air to be vented from the system utilizing the pre-compaction screw alone. In these applications, the optional Vacuum Deaeration System is available to assist in drawing the entrained air from the product. Vacuum filters can be installed in various locations and a vacuum pump system is utilized to forcibly remove entrained gas from within the product. Process improvements can be dramatic with respect to both compaction efficiency as well as capacity.



Optional Vacuum Deaeration System

PRODUCT CONTAINMENT SYSTEM AND N₂ INERT PROCESSING (option)

The Product Containment System (PCS) is designed to fully contain all product in the process and receiver sections of the Chilsonator system. A sealed connection between the equipment discharge and the receiver is possible due to the unique filters and vacuum system.

Advantages include:

- Minimal product exposure to operator and environment
- Prevents product contamination
- Minimal product loss

The PCS can be combined with an N₂ inerting system to reduce product oxygen exposure and explosion risks.



THE CHILSONATOR AUTOMATED CONTROL SYSTEM

is designed to provide optimum process control with excellent operator interface and data monitoring. The operator is able to view the instrument measurements and machine status information in picture form from the operator interface.

Features of the Chilsonator automated control system include:

- On-line help and diagnostic functions
- Restricted access of various functions
- Maintenance and calibration procedures
- Roll gap control
- Historical trending
- Report generation
- Alarm management
- 21 CFR Part 11 capable solutions are available

Controls are designed to meet customer specified classifications and standards. This includes special options such as explosion-proof execution and special voltage requirements.

VARIOUS ROLL SURFACES AVAILABLE

The cantilever design allows for easy changing and installation of a variety of roll designs. This convenient feature makes the IR520 ideal for laboratory and small production installations.



PRECISE SIZE REDUCTION OF COMPACTED PRODUCTS

The mill is selected and configured to meet the desired particle distribution. Selectable operating parameters include rotor type, screen type and operating speeds.



Portable electric enclosure

In-wall electrical enclosure

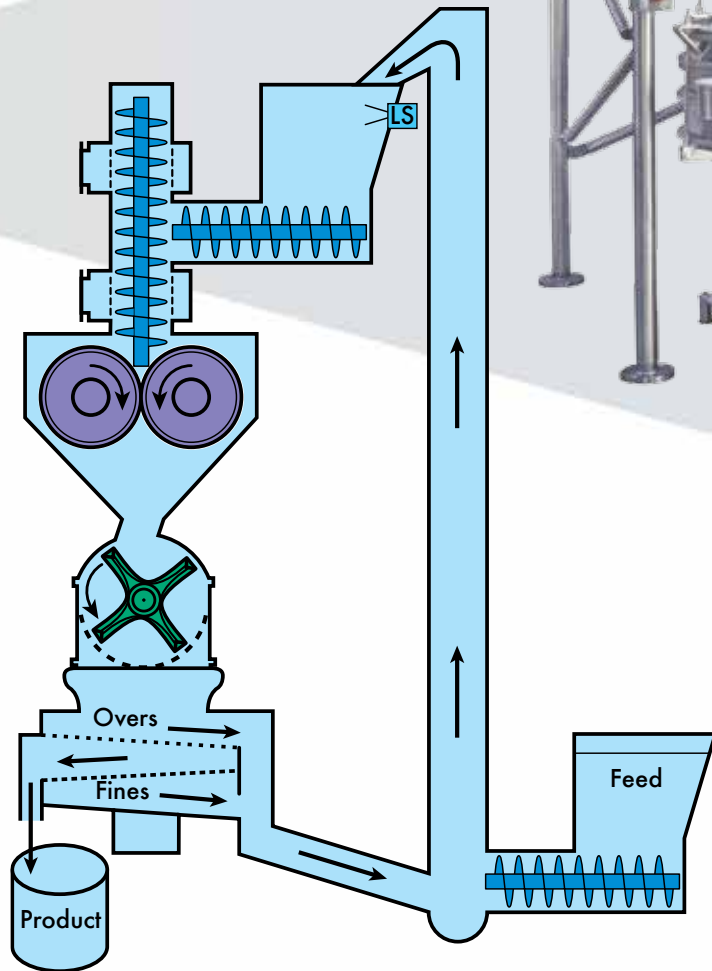
LOW CAPACITY FEED SYSTEM (option)

This optional system allows for processing as little as 50 grams, and up to 2 Kg., with minimal loss. This feature is ideally suited for research and development requirements. Results can be used to scale up to the standard IR520 or larger Chilsonators.



SYSTEM CONFIGURATIONS

CHILSONATOR SYSTEMS can be configured to meet specific product and process requirements. In most applications, the product that is compacted by the Chilsonator is then granulated to a uniform particle size distribution. This is most efficiently achieved with the FitzMill granulator. Addition of a screener, conveyors, and feeder depend upon system objectives and installation requirements.



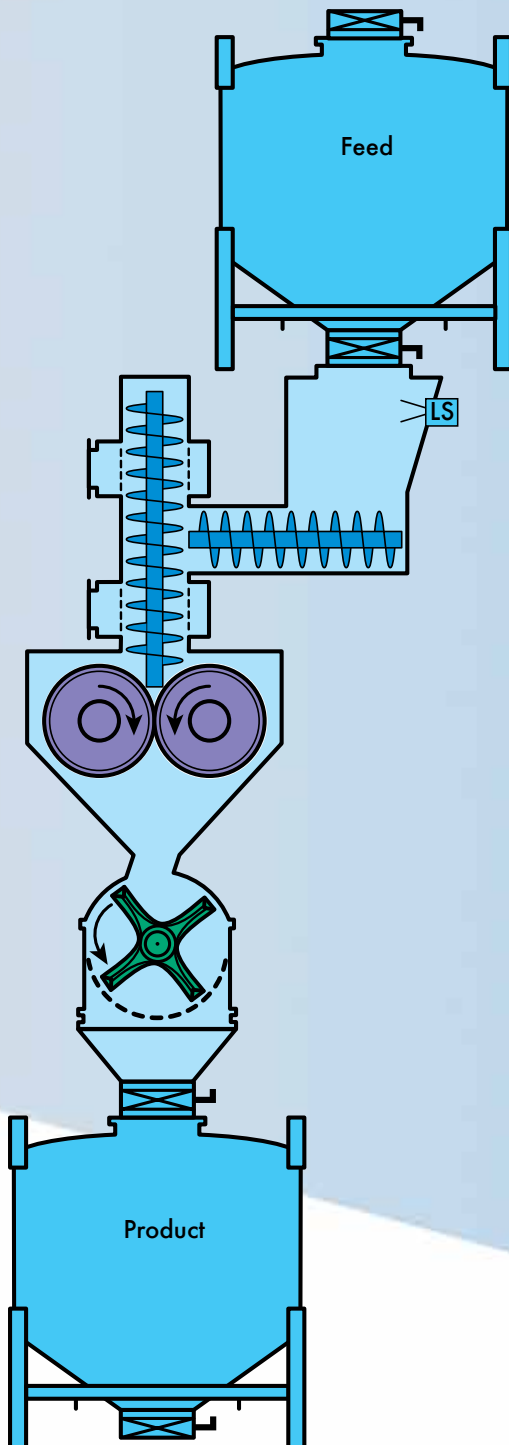
RECYCLE SYSTEM

A recycle system is essentially used for eliminating all fines and overs from the product. A typical recycle system includes the compactor, granulator, screener, initial feeder, and mechanical or pneumatic conveyor. Additional instrumentation such as level sensors are also required.

BIN-TO-BIN PROCESSING

Feeding material from an initial product bin, through the Chilsonator and FitzMill, and into a product receiver bin is a typical Chilsonator installation. Advantages include:

- Totally enclosed system
- Convenient unattended processing
- Simple connection and retrieval of product bins



PNEUMATIC FEEDING

Material can be charged into the Chilsonator feed hopper from ground level by utilizing a pneumatic conveyor, either manually with a wand, or automatically dumped from a bin into a pneumatic conveyor pick-up hopper. This provides a simple, cleanable method of delivering material to the Chilsonator.

THE FITZPATRICK COMPANY



With the introduction of the FitzMill® Comminutor in the 1930's, Fitzpatrick has pioneered particle size reduction technology for a wide variety of industries. With a focus on providing process flexibility and repeatability, cleanable and sanitary designs, and robust equipment that is easy to use, the FitzMill® Comminutor is a trusted part of many processing installations worldwide.

The Chilsonator® Dry Granulation System was developed in the late 1950's as Fitzpatrick developed expertise in particle forming technology. Fitzpatrick has been constantly improving this dry agglomeration technology, improving both existing processes as well as opening up new and difficult applications to the many cost and processing benefits of dry agglomeration.

In 2006 Fitzpatrick introduced the Fitz cM™ classifier mill to further expand and enhance their particle size reduction capabilities. The Fitz cM™ classifier mill can achieve fine particle sizes, with integral classifying capability, to enhance the particle size reduction process.

Pharmaceutical, chemical, food, plastics and other industries utilize a wide range of Fitzpatrick machines. Specialized, as well as custom equipment and systems, are also developed for specific applications based on the ever-changing needs of process equipment users. Each unit is built to stringent quality standards to operate under the most demanding manufacturing conditions. Over the years, Fitzpatrick's tradition of innovation continues to support their processing expertise.

In 2011, Fitzpatrick joined a group of IDEX companies that focus on material processing technologies, and includes Quadro Engineering and Microfluidics. Quadro specializes in technologies for dry, wet and fine milling, fluid mixing, powder dispersion, emulsification, material conveying and handling. Microfluidics specializes in technologies for Nano-enabled Applications such as size reduction, cell disruption and "bottom-up" Nano particle creation.

This IDEX group maintains Centers of Excellence test and support facilities located around the world, to provide process development assistance as well as ongoing support over the life cycle of the equipment. At Fitzpatrick our goal is to be your trusted provider of creative process solutions.

CHILSONATOR®

THE FITZPATRICK COMPANY

FITZMILL®

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