

# Collette



# Innovation through Experience

Collette NV was founded in Antwerp in 1892 as a manufacturer of mixers and kneaders for the bakery industry. Over the years the equipment range expanded to cover equipment for other industries, such as the automotive industry and from the early fifties on, the pharmaceutical industry.

From the experience Collette NV has gained in more than 100 years of equipment manufacturing of which more than 50 years for the pharmaceutical industry, constant innovation and improvement has become Collette's trademark. As a reward for our constant focus on quality, innovation and service, Collette NV was awarded the ISO 9001 certificate in 1997, which has been renewed in 2000.

The quality of the equipment, constant innovation and improvement with a focus on service are Collette's major assets, but other factors play an important role in the success of the company. For example our location in Wommelgem, close to the port of Antwerp and the airports of Antwerp and Brussels, allows easy access for customers and easy shipping of equipment. As part of the Niro Pharma Systems Group, we are able to offer many



advantages in support and synergy including full process line design and project management. The other companies within the group are all leading suppliers to the industry and include: Aeromatic-Fielder, Buck, Courtney, Galloway, and Niro.



## Process Development Center: Customer Service beyond the Technical Side



### A major role in the success story of Collette NV is played by the Process Development Center (PDC).

This fully equipped laboratory offers our customers the opportunity to benefit from years of experience in wet granulation, pelletising and drying processes in high

shear mixers and one-pot processors. The staff of the PDC consists of very experienced and dedicated people with a background of engineering, chemistry and pharmacy.

They will assist our customers with all questions concerning the process in our equipment.

At all times, an Ultima 75 one-pot processor is at the disposal of our customers to test our equipment with their own products. An Ultima 25 one-pot processor is available for rent for

customers who prefer to do these tests in their own facilities. Apart from the high shear mixer-processors, a wide range of analytical equipment is available.



# PDC

# Experience: The Gral Range



First introduced in 1975, the Collette Gral high shear mixer granulator is a fine example of the Collette experience in manufacturing high quality equipment for the pharmaceutical industry.

Although the original design is already more than 25 years old, the Gral is still the first choice granulator of many important pharmaceutical companies. The reason for this is that Collette NV has continuously improved its design over the years to make the Gral compliant to the strictest regulations.



## Top drive

The basic design of a Gral features a top driven mixer and chopper. This concept, together with the unique bowl shape, ensures a very good rope-type movement of the product in the bowl, offering excellent granulation characteristics. The Gral is available in all sizes from lab-scale to large production machines.



## Available capacities

Size Gral (liter)	10	25	75	150	300	400	600	900	1200
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The Gral range offers several options to optimize pharmaceutical production and operation.

### Movable head

- Low position for filling, high position for discharging
- Available on 300, 400 and 600-L machines

### Removable bowl

- Fast changeover between batches, low downtime for cleaning

### Stand alone or through-the-wall installation

- The through-the-wall installation: Space saving (reduction of expensive production area), GMP (maintenance interventions outside the production area)
- In the stand-alone execution, all mechanical parts are completely covered and sealed, so the machine remains GMP compliant

### One-pot system with vacuum drying

- Gral in processor execution



## Experience: The Gral Range

### Linking the Gral

For years, Collette NV has experience with integrating its equipment with other process units. Common integrations involve linking a Gral and a fluid bed dryer or an IBC material handling system.

With the incorporation of Collette NV into the GEA Niro Pharma systems group, this service has been expanded by collaborating with the other companies of the

same group, who deliver other key technologies such as fluid bed dryers, tablet presses, material handling systems, transport systems and high containment valves. The advantage of being able to offer a complete processing line from within the same group is obvious: one supplier, identical control systems, single point of contact, all of which benefit the end user.



# Gral

- ▲ Gral 300 movable head linked with Gallyay IBC system
- ◀ Gral processor 1200

# Innovation: The Ultima Range



Following our philosophy to be always one step ahead, Collette NV has decided to re-evaluate the Gral design. As a result, a completely new design of equipment has emerged: the Ultima range.

This range can be split into 2 groups: the Ultima - Grals, and the Ultima - processors.

The basic design of mixer, chopper and bowl has not been changed from the original Gral design for 2 major reasons.

- This design has proven its efficacy in more than 25 years of intensive use within the pharmaceutical industry.
- Gral customers can easily switch to the Ultima design WITHOUT revalidation.



- ▲ Ultima 75 swinging bowl
- ▼ Vacuum loading of Ultima 25

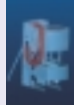
## Available capacities

Size Ultima (liter)	25	75	150	300	400	600	900	1200
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ultima



## Innovation: The Ultima Range



### The Ultima - Gral

The Ultima is designed in such a way that all outside surfaces are very smooth and thus easily cleaned. All necessary connections, tubes and cabling are completely covered and sealed, to avoid places where dust

and contaminations can collect.

The design of the discharge valve has been modified to allow better and more complete discharging of the product AND the cleaning solutions. This has further improved the WIP/CIP program for the Ultima range.

The Ultima - Gral can also be linked to other equipment such as fluid beds, as is done with the Gral.



- ▲ *Engineering & innovation*
- ▶ *Ultima 600*



# ultima



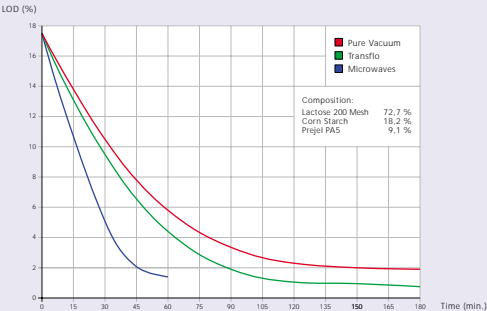
### The Ultima - Processor

Due to the current trend in R&D towards more potent drugs, the question of containment has become more and more prominent. High containment levels by

use of a one-pot processor enhance both operator safety and product quality and is therefore in many cases THE standard for processing highly potent compounds. The Ultima can be equip-

ped with several drying options to turn an Ultima - Gral into an Ultima - processor.

- Typical drying curves on Ultima 75
- Influence of the swinging bowl on granulate quality (opposite page)



ultima





## Innovation: The Ultima Range

- **Vacuum drying**

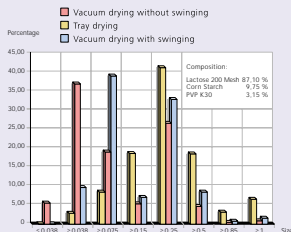
All Ultima processors are equipped with a very efficient vacuum drying system.

- **Microwave vacuum drying**

This system consists of variable power microwave generators and wave-guides that lead the microwaves to the processor. It is equipped with all safety features and controls to ensure complete safety for product, equipment and operator (e.g. leak tests, product temperature control, arc detection, forward and reflected power measurement, ...). This drying technique is by far the fastest drying method available in one-pot processors.

- **Swinging bowl**

This feature is the most innovative option of the Ultima-range. During drying, the swinging motion of the processor increases product contact with the heated surface of the bowl. A reduction in drying time, less sticking and better granulate quality due to less agitation from the mixing impeller is achieved. Processing of old formulae with weak granulates is now achievable!



- **Gas-assisted vacuum drying: Transflo**

The **Transflo** system consists of filters located in the bottom of the bowl that are connected to a gas supply (optionally sterile) via transparent, interchangeable tubing (easy inspection, cleaning (optional WIP cycle) and validation). The Transflo system leads to faster, gentler drying.

**In short, a full option Ultima - processor is the most complete one-pot processor on the market.**



- ▲ Transflo system
- Principle of Transflo system

Ultima

# Control Systems

## Control Systems

Different types of control systems are available for the Ultima range.

### Basic solution

OP/PLC based (standard)

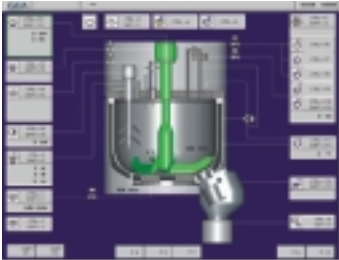
- The operator panel forms a very user-friendly interface with the machine and allows you to set any process parameters and to check any relevant actual values.
- For historical trending, a separate paperless recorder, with corresponding software, can be added.

### High end version

PC/PLC based, Visual Batch software (available from the Ultima 75 on).

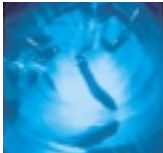


- Software compliant with ISA S88.01 and NAMUR batch processing standards, 3D-process visualization, and unlimited space for storage of recipes.
- The batch information is stored real-time in a relational database.
- This system can be integrated into higher level business and enterprise planning systems such as SAP, etc.



### Video camera

- On all Ultima's a video camera can be installed allowing easy visual process monitoring.



- ▲ Basic solution paperless recorder (top left)
- ▲ High end version Visual Batch Software (top right)
- ▶ Video camera image (middle)
- ▶ Ultima 25 with OP/PLC control system



## Process Technology

Because the Ultima is the most complete one-pot-processor on the market, it does not only execute standard wet granulation and drying processes, but also it offers an enormous flexibility to process and produce difficult products such as:

- Effervescent
- Old formulations (e.g. with starch paste)
- Low binder (thus weak) formulations
- Moisture, heat or light sensitive products
- Vitamins
- Highly potent or toxic drugs
- Etc.

The special features of the Ultima also allow other processes than standard wet granulation and drying, for example:

### Steam granulation

- Steam is added via the Transflo filters.

### Melt granulation

- Melting of the wax is accomplished by heating of the jacket or by the micro-waves.

### Pelletization

- A specially designed pellet mixing arm is available.

### Coating

- The liquid addition nozzle is replaced by a special coating nozzle for atomization of the coating agent.

### Crystallization processes

- Etc.

### Process assistance

For all your solutions regarding processes, the PDC team is ready to help promptly. They will assist with any questions about processes on Collette equipment, either on site or in simulation trials in



the PDC in Wommelgem. Instances of on site support are process reviews and optimizations, consultancy in case of technology upgrades, process conversions and new process launches.



▲ Standard mixing blades



▲ Pellet mixing blades

# Collette

# Niro Pharma Systems

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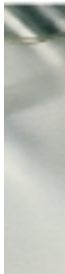
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## Total solutions for processing pharmaceutical solid dosage forms from one supplier

Niro Pharma Systems was formed by the fusion of Aeromatic-Fielder, Buck, Collette, Courtoy and Gallay. Each of these companies offers you equipment that defines the state-of-the-art.

Additionally Niro Pharma Systems is able to guide you in the selection of the process best fulfilling your specific requirements and in the complete realisation of the entire project. Niro spray drying systems and the contract manufacturing capabilities of Atlantic Pharmaceutical Services complete the scope.



Powder Technology  
Division

[www.Niro-Pharma-Systems.com](http://www.Niro-Pharma-Systems.com)