

MACHINERY

Granulation



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HSM X•ONE series

An advanced series of high-shear mixer granulators that ensure faster processing and narrow particle-size distribution, while achieving content uniformity in the dry mix. The series is equipped with ACG's process control system and features the unique MOST™ (Maximum Operational Safety Technology).

Applications

Wet granulation, mixing



Features

Benefits

Unique product-bowl geometry	Facilitates uniform mixing by maintaining a roping flow regime, and faster process stabilisation due to linear scalability features – ensuring optimum mixing efficiency
Designed with a Z-shaped impeller and multi-blade chopper	Achieves uniform binder distribution for higher yield and optimal particle-size distribution, minimising accumulation or sticking on the product bowl
A 12-bar pressure shock-resistant system featuring the MOST™ (Maximum Operational Safety Technology) concept approved by FSA in Germany and compliant with ATEX (Directive 2014 / 34 / EU)	No mechanical deformation caused in case of a pressure-shock event Production can be resumed in the shortest possible time A far safer working environment, thanks to a non-vented, fully contained design
Multiple systems for charging, discharging and wash-in-place (WIP)	Unlocks greater flexibility to suit formulation needs
ACG's exclusive process control system	Compliant with ATEX (Directive 2014 / 34 / EU), GAMP 5 and 21 CFR Part 11, this advanced technology allows intuitive, secure monitoring and control of the system

Technical specifications

Model	Working volume*	
HSM 150 X•ONE	Min	45 l
	Max	120 l
HSM 300 X•ONE	Min	90 l
	Max	240 l
HSM 400 X•ONE	Min	120 l
	Max	320 l
HSM 600 X•ONE	Min	180 l
	Max	480 l
HSM 800 X•ONE	Min	240 l
	Max	640 l
HSM 1200 X•ONE	Min	360 l
	Max	960 l
HSM 2000 X•ONE	Min	600 l
	Max	1,600 l

Models are also available in a non-pressure shock-resistant design for select markets / formulations.

* Dependent on bulk density

QUEST HSM II

QUEST HSM II supports innovation at R&D level, and is designed to help ensure cGMP compliance.

Its standalone mobile plug-and-play design enables quick and easy set up and use. For batch size flexibility, it accommodates interchangeable bowls in 3 different sizes.



Applications

Mixing, hot-melt granulation and wet granulation

Find this information on our website:

Machinery > Granulation > High shear mixers > HSM X•ONE series

Features

A 12-bar pressure shock-resistant system featuring the MOST™ (Maximum Operational Safety Technology) concept approved by FSA in Germany and compliant with ATEX (Directive 2014 / 34 / EU)

Benefits

No mechanical deformation caused in case of a pressure-shock event

Production can be resumed in the shortest possible time
A far safer working environment, thanks to a non-vented, fully contained design

Designed with Z-shaped impeller blades

Optimum flow of material in and out of the shear zone, minimising accumulation or sticking on the product bowl

Standalone mobile plug-and-play system

Use wherever it's needed in the lab – quickly and easily

Multi-blade straight chopper

Breaks down lumps formed during granule formation, avoids 'dead zones', and achieves uniform binder distribution

Interchangeable bowls (2 l, 5 l, and 10 l)

Allows fully flexible batch sizes

Technical specifications

	Bowl size	2 l	5 l	10 l
Working volume*	Min	0.6 l	1.5 l	3 l
	Max	1.2 l	3 l	6 l

* Dependent on bulk density

QUEST HSM III

QUEST HSM III supports R&D at lab and pilot scale, and is designed to help with cGMP compliance.

Its standalone plug-and-play design enables swift and effortless set up.



Applications

Mixing, hot-melt granulation and wet granulation

Features

A 12-bar pressure shock-resistant system featuring the MOST™ (Maximum Operational Safety Technology) concept approved by FSA in Germany and compliant with ATEX (Directive 2014 / 34 / EU)	No mechanical deformation caused in case of a pressure-shock event Production can be resumed in the shortest possible time A far safer working environment, thanks to a non-vented, fully contained design
ACG's exclusive process control system	Compliant with ATEX, GAMP 5 and 21 CFR Part 11, this advanced technology allows intuitive, secure monitoring and control
Designed with Z-shaped impeller blades	Optimum flow of material in and out of the shear zone, minimising accumulation or sticking on the product bowl
Standalone mobile plug-and-play system	Use wherever it's needed in the lab – quickly and easily
Multi-blade straight chopper	Breaks down lumps formed during granule formation, avoids 'dead zones', and achieves uniform binder distribution
Interchangeable bowls (15 l, 30 l, and 65 l)	Allows fully flexible batch sizes

Technical specifications

	Bowl size	15 l	30 l	65 l
Working volume*	Min	4.5 l	9 l	19.5 l
	Max	9 l	18 l	39 l

* Dependent on bulk density

Find this information on our website:

Machinery > Granulation > High shear mixers > HSM X•ONE series

FBE X•ONE series

The FBE X•ONE series is our most advanced range of fluid-bed systems. Developed at our Design Centre in Mülheim, Germany, it sets a new benchmark for performance, handling and operational safety. Offering excellent top-spray granulation and drying, it has already optimised the processing of over 1,800 formulations.



Applications

Top-spray granulation, wet-mass drying, hot-melt granulation and tangential-spray granulation

Find this information on our website:
Machinery > Granulation > Fluid beds > FBE X•ONE series

Features

Benefits

A 12-bar pressure-shock-resistant system, featuring the MOST™ (Maximum Operational Safety Technology) concept approved by FSA Germany, and compliant with ATEX (Directive 2014 / 34 / EU)	No mechanical deformation caused in case of a pressure-shock event Production can be resumed in the shortest possible time Far safer for the environment, thanks to a non-vented, fully contained design
X•ONE inflatable seals	Safety at low pressure (as low as 4.5 bar)
QASV (Quick Action Stop Valves)	Ensures explosion is contained within 20 milliseconds of detection
ACG's exclusive process control system	Compliant with ATEX (Directive 2014 / 34 / EU), GAMP 5 and 21 CFR Part 11, this advanced technology allows intuitive, secure monitoring and control
Customised charging, discharging and wash-in-place (WIP) systems – available in standalone and granulation-train configurations	Enables more flexibility to meet formulation requirements

Technical specifications

Model	Working volume*	
FBE 125 X•ONE	Min	33 l
	Max	168 l
FBE 250 X•ONE	Min	75 l
	Max	368 l
FBE 500 X•ONE	Min	135 l
	Max	608 l
FBE 800 X•ONE	Min	220 l
	Max	888 l
FBE 1300 X•ONE	Min	345 l
	Max	1,344 l
FBE 1800 X•ONE	Min	525 l
	Max	1,956 l

Models are also available in a non-pressure shock-resistant design for select markets / formulations.

* Dependent on bulk density

FBC X•ONE series

Supreme safety with ultimate versatility – that's what you get with the FBC X•ONE series developed at our Design Centre in Mülheim, Germany. While you can use it for diverse applications, including drying, top-spray granulation and Wurster coating, its cutting-edge design and features don't compromise process or operator safety. In short, you get the very best outcomes and unbeatable protection.

Applications

Wet-mass drying, Wurster coating, top-spray, tangential-spray, hot-melt and rotor granulation



Find this information on our website:

Machinery > Granulation > Fluid bed combos > FBC X•ONE series

Features

The 12-bar pressure shock-resistant system features the MOST™ (Maximum Operational Safety Technology) concept approved by the FSA and compliant with ATEX (Directive 2014 / 34 / EU)

X•ONE inflatable seals

QASV (Quick Action Stop Valves)

Customised charging, discharging and wash-in-place (WIP) systems available in standalone and granulation-train configurations

ACG's exclusive process control system

Patented nozzles developed with Düsen-Schlick GmbH, Germany exclusively for ACG

Benefits

No mechanical deformation caused in case of a pressure-shock event

Production can be resumed in the shortest possible time
Far safer for the environment, thanks to a non-vented, fully contained design

Safety at low pressure (as low as 4.5 bar)

Ensures explosion is contained within 20 milliseconds of detection

Unlocks greater flexibility to meet formulation requirements

Compliant with ATEX (Directive 2014 / 34 / EU), GAMP 5 and 21 CFR Part 11, this advanced technology allows intuitive, secure monitoring and control

Enhanced productivity, and simplified operation and cleaning

Technical specifications

Model	Working volume*	Top-spray granulation	Wurster coating
FBC 125 X•ONE	Min	33 l	9 l
	Max	168 l	80 l
FBC 250 X•ONE	Min	75 l	23 l
	Max	368 l	170 l
FBC 500 X•ONE	Min	135 l	40 l
	Max	608 l	365 l
FBC 800 X•ONE	Min	220 l	85 l
	Max	888 l	590 l
FBC 1300 X•ONE	Min	345 l	130 l
	Max	1,344 l	835 l
FBC 1800 X•ONE	Min	525 l	180 l
	Max	1,956 l	1,185 l

Models are also available in a non-pressure shock-resistant design for select markets / formulations.

* Dependent on bulk density

QUEST FB I

Our versatile FBC range expands your process efficiency exponentially. With your need for flexible operations in mind, we designed our combo series to feature top-spray and Wurster coating technology in one innovative machine. It's a proven boost for the pharmaceutical and nutraceutical industries.

QUEST FB I is a lab-scale fluid-bed system that champions safety and precision, and it's the perfect choice for pharmaceutical feasibility studies. It features a certified 12-bar pressure shock-resistant design, with a versatile Schlick spray nozzle for both granulation (top-spray) and Wurster coating processes.

Mounted on a mobile trolley platform and measuring just 1 m x 1.2 m, it's ideal for labs – saving space while achieving optimum functionality.



Applications

Drying, Wurster coating, top-spray and hot-melt granulation

Features

A 12-bar pressure shock-resistant system featuring the MOST™ (Maximum Operator Safety Technology) concept	Ensures 100% operator and environment safety, thanks to its non-vented, fully contained design
Unique proprietary dual-purpose Schlick spray nozzle	Single nozzle for granulation (top-spray) and pellet coating (Wurster coating) processes
Heating system with face and bypass mechanism	Precise and quick process-temperature control for consistent product quality
Expansion chamber with 360° sight glass	Facilitates easy monitoring of the fluidisation process
Integrated peristaltic pump	Precise control over spray rates via human-machine interface (HMI)

Technical specifications

		Top-spray granulation	Wurster coating
Working volume*	Min	0.6 l	0.3 l
	Max	3 l	1.5 l

* Dependent on bulk density

QUEST FB II X•ONE

Combining great design with ergonomics, QUEST FB II X•ONE is a safe, versatile lab machine with multiple applications. Its capability and performance across drying, granulation, Wurster coating and rotor granulation cover the full range of R&D-scale studies.

**Applications**

Drying, Wurster coating, wet granulation, tangential-spray, hot-melt and rotor granulation

Features**Benefits**

12-bar pressure shock resistant system featuring the MOST™ (Maximum Operational Safety Technology) concept approved by ATEX and certified by FSA	No mechanical deformation caused in case of a pressure-shock event Far safer for the environment, thanks to a non-vented, fully contained design
Swivel filter housing	A versatile and portable system for drying, single-pot granulation and Wurster coating Quick and easy to install and use anywhere in your lab
Unique filter change system	Reduces dust emissions to a minimum, and ensures operator safety and ease of use
Slide-in / slide-out process inserts	Easy charging and discharging
Four process inserts	Handles varied batch sizes and multiple applications (drying, wet granulation, Wurster coating, tangential-spray, hot-melt and rotor granulation) with greater operational flexibility

Technical specifications

	Bowl size	Top-spray granulation			
		3 l	6 l	9 l	12 l
Working volume*	Min	0.6 l	1.2 l	1.8 l	2.4 l
	Max	3 l	6 l	9 l	12 l

Wurster coating

	Bowl size	3 l	6 l	9 l
		Min	0.6 l	1.2 l
Working volume*	Max	2 l	4 l	8 l

* Dependent on bulk density

Find this information on our website:

Machinery > Granulation > Fluid bed combos > FBC X•ONE series

QUEST FB III X•ONE

A strong foundation for scale-up and design of experiments (DoE) studies, our QUEST FB III X•ONE is a versatile, intermediate-scale fluid-bed system featuring all aspects of typical commercial-scale equipment.

This means you can establish process parameters quickly and accurately, and be confident scaling up your batches.



Applications

Drying, hot-melt granulation, Wurster coating, top-spray, tangential-spray and rotor granulation

Features

A 12-bar pressure shock resistant system featuring the MOST™ (Maximum Operational Safety Technology) concept approved by ATEX and certified by FSA

Benefits

No mechanical deformation caused in case of a pressure-shock event

Far safer for the environment, thanks to a non-vented, fully contained design

X•ONE inflatable seals

12-bar-rated inflatable seals feature machined ensure safety at pressures as low as 4.5 bar

Lower operating costs and significantly longer lifespan

State-of-the-art twin-filter bag-shaking system

Most efficient way of removing sticky materials, which prevents filter choking, thereby improving overall filter performance

Enhances yield significantly while maintaining lower compressed air consumption

ACG's exclusive process control system

Compliant with ATEX, GAMP 5 and 21 CFR Part 11, this advanced technology allows intuitive, secure monitoring and control

Fully integrated multi-function column

Reduces cleaning and changeover time

The smart open-profile column has removable covers for swift and simple access to integrated peripherals, while a linear drive makes raising and lowering the exhaust air filter far easier

The control panel and keyboard are adjustable to operator preference

Find this information on our website:

Machinery > Granulation > Fluid bed combos > FBC X•ONE series

Technical specifications

		Top-spray granulation	Wurster coating
Working volume*	Min	12 l	5 l
	Max	55 l	25 l

* Dependent on bulk density

GPCG 1.1

One of the workhorses in its performance class for feasibility and scale-up studies, the remarkably versatile GPCG 1.1 has all the features of a production-scale machine. Its capabilities include drying, granulation, particle / pellet coating, dry-powder layering, spray agglomeration and hot-melt granulation.

Applications

Top-spray granulation, wet-mass drying, hot-melt granulation, Wurster coating

**Features**

A mobile plug-and-play, standalone system with an optional integrated air-handling unit	Highly portable and user-friendly for quick switching across diverse applications
Filter bags with a shaking mechanism	Faster and more effective cleaning and handling
Multiple and interchangeable air-distribution plates	Select and install the plate that best suits your product, quickly and easily

Technical specifications

		Top-spray granulation	Wurster coating	RGPCG
Working volume*	Min	1.4 l	0.5 l	1.5 l
	Max	4.7 l	2.4 l	4 l

* Dependent on bulk density

MINIQUEST F

This unique tabletop granulation system is designed specifically for academic settings, and can handle batch sizes as small as 50 g. Featuring a nozzle from Düsen-Schlick GmbH, Germany, this versatile multitasking system is ideal for drying, granulation and Wurster coating.

Applications

Top-spray granulation, wet-mass drying and Wurster coating



Find this information on our website:
Machinery > Granulation > Fluid bed combos > FBC series

Features

Features	Benefits
Integrated peristaltic pump	Facilitates compact housing of the system and minimises footprint
Innovative tower assembly	Allows easy operation, inspection, and cleaning of the system
Unique venturi-based fluidisation system	Requires no electrically powered blower, making installation easier and more cost-effective
5 µ sock filter prevents dust escape	Ensures cleaner operations and working environments

Technical specifications

		Top-spray granulation	Wurster coating
Working volume*	Min	225 ml	40 ml
	Max	750 ml	200 ml

* Dependent on bulk density

QUEST FB

QUEST FB is a highly versatile 'plug and play' fluid-bed unit for lab-scale feasibility studies, featuring a single retrofittable container for top-spray and Wurster coating applications. Its ease of use and adaptability make it ideal for R&D scientists.



Applications

Top-spray granulation, drying, Wurster coating, spray-congealing

*Find this information on our website:
Machinery > Granulation > Fluid bed combos > FBC series*

Features

A versatile and portable system for drying, single-pot granulation and Wurster coating	Quick and easy to install and use anywhere in your lab A single system for diverse applications
Product container convertible from top-spray to Wurster coating, with minor adjustments	Effortless, seamless transition from one application to another
A weighing scale integrated into the Programmable Logic Controller (PLC) for spray-rate measurement	Allows you to set and control the spray rate easily
Touchscreen human-machine interface (HMI) and PLC-based control system	User-friendly controls
Multiple air distribution plates	Choose the air distribution plate that best suits your product

Technical specifications

		Top-spray granulation	Wurster coating
Working volume*	Min	0.9 l	0.3 l
	Max	3 l	1.5 l

* Dependent on bulk density

The GT X•ONE series is ACG's answer to the long-standing call for greater efficiency and reassurance throughout the granulation line. Combining the best of our high-shear mixer (HSM X•ONE) and fluid-bed equipment (FBE X•ONE / FBC X•ONE), GT X•ONE makes granulation more adaptable and seamless – and enhances ease of use, safety and output.

Designed at our Design Centre in Mülheim, Germany, it's a shining example of how collaboration and applied insights can ensure reduced waste and downtime, while improving product consistency and quality. All this comes together in a highly advanced and ergonomically-informed user experience.



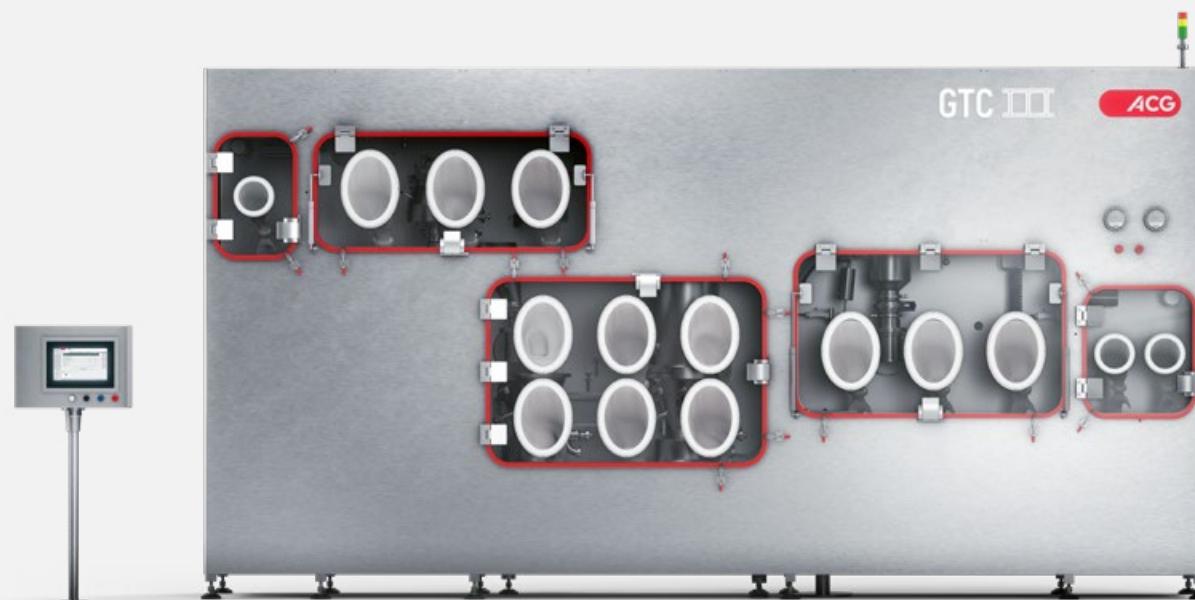
Features	Benefits
A 12-bar pressure shock-resistant system featuring the MOST™ (Maximum Operational Safety Technology) concept approved by FSA in Germany and compliant with ATEX (Directive 2014 / 34 / EU)	No mechanical deformation caused in case of a pressure-shock event Production can be resumed in the shortest possible time A far safer working environment, thanks to a non-vented, fully contained design
X•ONE inflatable seals and Quick Action Stop Valves (QASV)	Our unique seals have a longer lifespan due to significantly reduced operating pressures Ensures safety at pressures as low as 4.5 bar
Compact machine footprint	Reduces floorspace requirements by around 50%
Through-the-wall construction	Allows clear separation between processing and technical areas, ensuring easier maintenance, cleaning, operation and GMP compliance
Enclosed product handling, such as gravity charging or vacuum charging systems, that can be customised to suit user requirements	Ensures closed-loop product-transfer with safe and smooth material flow, and thereby reduces product leftovers For example, a vacuum charging system provides closed-loop material transfer, and so vastly reduces dust generation and product exposure – and reduces the need for manual intervention, which makes it GMP compliant
Superior wash-in-place (WIP) capability	Eliminates dead spots and deals effortlessly with crevices, sharp surfaces and difficult-to-access points Ensures easy washing and quick changeover
ACG's exclusive process and control system	Compliant with ATEX (Directive 2014 / 34 / EU), GAMP 5 and 21 CFR Part 11, this advanced technology Allows intuitive, secure monitoring and control of the system

Models are also available in a non-pressure shock-resistant design for select markets / formulations.

GTC III

The GTC III is an integrated granulation line that facilitates a seamless and efficient production flow of the entire granulation process. With OEB 5 compliance, GTC III is designed to prioritise containment and operator safety, optimising productivity, and ensuring quality, all while upholding stringent standards for product integrity and environmental protection.

It is especially suitable for the granulation of oncological, hormonal, biopharmaceutical, antiviral and other such HPAPIs (highly potent active pharmaceutical ingredients).



Features	Benefits
A complete granulation line with OEB 5 compliance	Performs granulation to blending, ensuring the highest safety standards even for HPAPIs
Provisions for rapid transfer port, active transfer port and contained poly bag transfer	Facilitates charging of material in isolator without compromising integrity
A wide range of capacities (1.5 to 10 l)	Offers flexibility in batch sizes, tailored to your specific needs
Integrated wet and dry mills	Contained particle sizing of wet and dry granules creates a seamless processing experience, boosting safety, efficiency and productivity
Multiple glove ports	Ensures 100% accessibility and operator safety, promoting a secure and comfortable working environment
Flexibility to integrate the weighing scale inside the isolator	Easy online interface-based monitoring of binder solution spray rate Streamlines your processes, enhancing accuracy and convenience
IPC-based control system with complete 21 CFR part 11 compliance	Ensures regulatory adherence and operational efficiency with audit trails, user management, recipe management, and batch reports
Strategically placed washing nozzles, along with handheld options	Provides thorough and efficient cleaning saving time and effort Ensures operator safety
Optimised footprint	Maximises your available space, optimizing your facility layout and saving costs

R series (rotor attachments)

The R series rotor insert is the latest innovation in ACG's fluid-bed machines. Combining different processes into a single container facilitates a wide range of applications, including pelletisation, dry-powder layering, rotor granulation / suspension coating, and spherical granulation.

Ultimately, this ensures perfect-shaped pellets and high-density granules with narrow particle-size distribution. All this is backed by extensive process and optimisation support from our experts, who have collective experience and expertise in handling over 1,000 formulations.

Applications

Spheronisation / pelletisation, powder layering, and solution and suspension coating



Find this information on our website:

Machinery > Granulation > Special attachments > R series

Features**Benefits**

Plug-and-play versatility, with interchangeable inserts retrofittable to existing fluid-bed combination machines	Access to cutting-edge technology without additional investment
Highly accurate powder dosing system for a wide range of applications	Precise process control for drug layering and powder coating applications
Rotor discs for the full range of applications	Enables spheronisation and drug layering
Integrates easily with a wide variety of powder feeders	Offers flexibility and is suitable for multiple applications

Technical specifications

		GPCG 1.1	R II	R125	R250	R500
Working volume	Min	1.5 l	2 l	15 l	30 l	45 l
	Max	4 l	6 l	50 l	100 l	150 l

Aftermarket. Not afterthought.

At ACG, we understand that when you get a new piece of factory equipment, you're buying far more than a machine; you're also investing in a relationship that will last its lifetime.

That's why we take our aftermarket service so seriously.

Whether you need advice or training, are preparing to make your factories 'smarter', or simply need a machine fixed fast, know that ACG will always go above and beyond to offer excellent service and value. As far as we're concerned, we're in this together – for life.



Let's talk.

Get in touch to find out more about our range of products and services. If you have specific equipment needs, we can even collaborate on delivering a purpose-made solution. We look forward to chatting.

Email us

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