



Process Engineering
Division

Niro Pharma Systems

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Aeromatic-Fielder

NEW PMA-Advanced™ High Shear Mixer/Granulator

The New PMA-Advanced™ High Shear Mixer/Granulator is a multi-purpose processor equally suitable for high speed dispersion of dry powders, aqueous or solvent granulations, effervescent products and melt pelletization.

Production PMA-Advanced™ offers bowl volumes from 150 to 1800 liters and is designed on the 'building block' principle. By adding selected options to the basic machine a granulation plant can be supplied that exactly meets individual customer requirements.

- **Encapsulated Bowl Design**

This provides a modern, GMP-friendly exterior appearance to the machine. Ultimately this makes the unit easier to clean.

- **Frame Mounted - Through the wall Configuration**

Through the wall offers the best option in terms of cleanliness, maintenance and ATEX. By keeping the motors out of the process room, you are preventing risk of contamination coming from these difficult to clean items.

Maintenance is carried out from the technical area, avoiding the need for the maintenance engineer to work in a GMP area. This makes the job easier and again reduces the risk of contamination. For ATEX, the design allows us to classify technical area as safe. This avoids the need for costlier flameproof motors, making the upgrade for working with solvents much easier. The frame mounting provides a standard format for the machine, allowing it to be constructed and installed using the same structure. This structure may be raised using standard modules to achieve the customer's desired height. For some installations it also means we can attach control panels and qualify the system prior to shipping, significantly reducing the installation time on site.

- **Concealed hinge mechanism**

The cover is mounted on a concealed hinge mechanism allowing the cover to be lifted as before, but keeping the counterweight in the technical area. Again, this leads to a more GMP design, reducing surfaces, making cleaning easier.

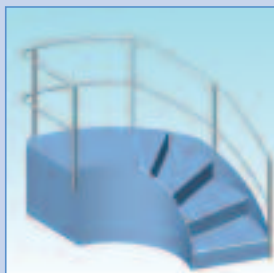
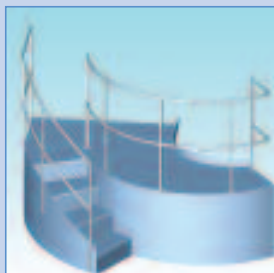
On equipment supplied with the Pressure Shock Resistant design option the hinge operation is power assisted to provide safe and comfortable opening to the bowl cover.



PMA-Advanced™ High Shear Mixer/Granulator

Capacities

		PMA150	PMA300	PMA400	PMA600	PMA800	PMA1200	PMA1800
Bowl Volume	liters	150	300	400	600	800	1200	1800
Typical Weight @ 0.6 g/l	kg	60	120	160	240	320	480	725
Main Impeller	kW	11	22	30	30	36	45	75
Mixing Impeller (2 Speed)	rpm	130/260	110/220	100/200	85/170	80/160	70/140	60/120
Mixing Impeller (Variable Speed)	rpm	5-260	5-220	5-200	5-170	5-160	5-140	5-120
Granulator Motor	kW	3.2/4.0	5.5/7.5	5.5/7.5	7.5/11	7.5/11	11/15	15/22
Granulator Speed (50 Hz)	rpm	1500/3000	1500/3000	1500/3000	1500/3000	1500/3000	1500/3000	1500/3000
Granulator Speed (60 Hz)	rpm	1800/3600	1800/3600	1800/3600	1800/3600	1800/3600	1800/3600	1800/3600
Weight (approx)	kg	1000	1800	1900	2200	3200	4000	6000



• Standard Platform Designs (optional)

Two standard platforms are available to integrate with the PMA-Advanced™. The "Medium" platform provides room adjacent to the bowl for the operator to carry out all filling and cleaning operations. The "XL" platform additionally provides space for other items / operators on the platform and also provides sufficient space to allow the operator interface to be mounted at the platform level. Due to the clean lines of this design the bowl/ cover area can be easily accessed using mobile steps.

• Clean line discharge valve.

The chute design is based on "quick exit" and clean drop of granule with minimum "hang up" surfaces. The plug design is based on the successful plug and shaft seal arrangements employed on PMAs since 2003, a change to the shaft fixing has improved clean-ability by removal of the lock nut and cover. These items are unnecessary as the plug and shaft seal can now be easily removed with the air cylinder as one assembly from and into the technical area.

- Shaft seals provided in a "cartridge" design for easy removal and replacement.

• Concealed Services (optional)

The Filter system can be mounted in the hinge mechanism with exhausted air passing through the centre of the hinge. This creates a less cluttered working space with fewer hoses being run in the process area to the machine. Furthermore pneumatic pipework for actuators and other similar services may also be run through the hinge.

• Facility to add optional shaft seal condition monitoring.

Monitoring can provide benefits in the maintenance program, helping to prevent problems before they occur.

- Facility included for optional Impeller lifting
To allow the underside of the impeller to be easily cleaned and inspected.
- Facility included for optional fully Integrated mill
- Design includes for "PAT" facilities:
 - The mounting of Acoustic Emission Monitoring Sensors (optional)
 - Direct measurement of the Impeller torque (optional)

Critically the process geometry of the PMA-Advanced™ is identical to the previous model. Modifications to the design have been made solely to benefit the user and owner in terms of ease-of-use, cleanability, process analysis and installation. By uniting these new benefits with the proven PMA process technology, Aeromatic-Fielder is providing the logical solution for your granulation needs.

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Niro Pharma Systems unites the technologies of Aeromatic, Buck, Collette, Courtoy, Fielder, Nica and Niro to supply advanced processing solutions for solid dosage forms to the pharmaceutical industry.

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