

AUSTAR

High Shear Granulator

AUSTAR



Formulation

High shear granulator is applied to powder mixing and granulating processes in pharmaceutical, health care food and fine chemical industries. In combination with European and American advanced granulating technologies, AUSTAR is dedicated to providing clients with intelligent and high efficient granulating process system according to the specific process requirements.

Product Structure


The high shear granulator is mainly used for the mixing of API excipients and granulating. The machine consists of basic body support, power drive system, bottom-driven agitating system, chopper system, bowl lid, solution dosing system, pressure balancing and filtering system, as well as air sealing system.


One bottom-driven tri-blade agitator is near to the inner wall and bottom of the bowl, and the special designed container can facilitate the powder mixing and granulating process. A vortex flow will be developed at the end of the agitating blade to shorten mixing time and realize better uniformity and higher granule yield. The granulating uniformity will be achieved by the perfect coordination of mixing and granulating unit. The binder can be added by peristaltic pump or by gravity. The binder can be added after the completion of mixing and optimum solution distribution can be realized. The wet mill can be offered as an option and it can be controlled integrally with the granulating system.

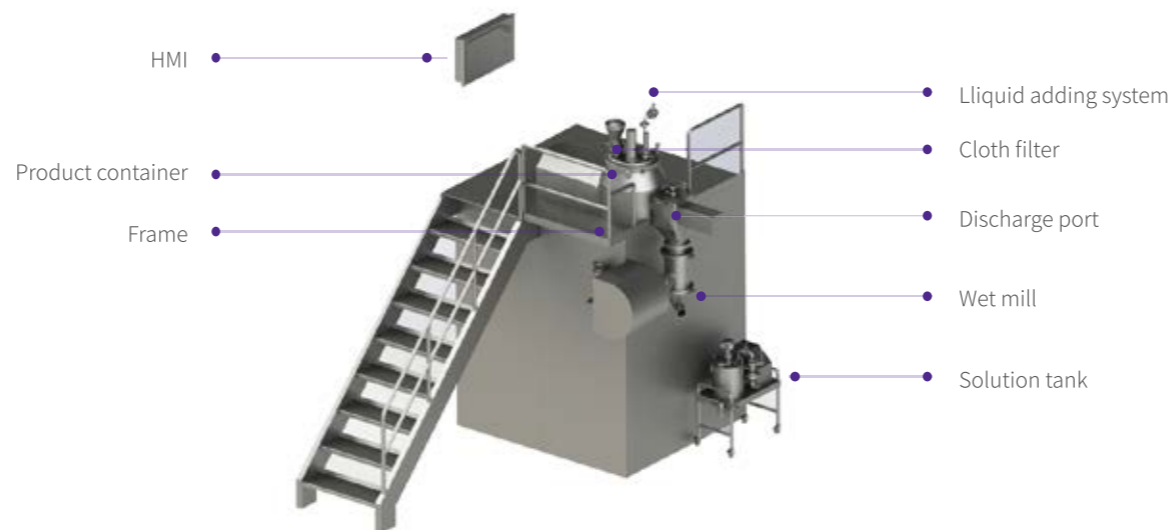
Product Features

- A single bowl can realize a wider range of production capacity coverage (20-90%).
- Lab equipment uses changeable bowl technology and can realize a wider range of production capacity coverage.
- Special bowl body, agitating design as well as the control of angular tip speed can effectively guarantee uniform mixing and granulating effect of the machines with different production capacities.
- The agitating speed as low as 1 rpm can facilitate the control of discharging speed to prevent possible blockage when the machine is discharged to the downstream fluid bed.
- Minimized residual after discharging process.
- Jacket design for temperature control.
- Easier cleaning process.
- Explosion-proof and inert gas protection systems.
- Software in compliance with FDA, EU GMP, cGMP regulations.
- High quality validation documentation system.
- Better mixing uniformity.

Configurations

Basic Configurations		
1. GMP-complied surface treatment	5. All parts in contact with the powder in compliance with GMP requirements	 Agitator and Chopper
2. Automatic vacuum feeding systems	6. Integrated discharge port and milling systems	
3. Automatic liquid dosing systems	7. Modular WIP system	
4. Mixing and granulating systems	8. Software in compliance with FDA 21 CFR part 11	

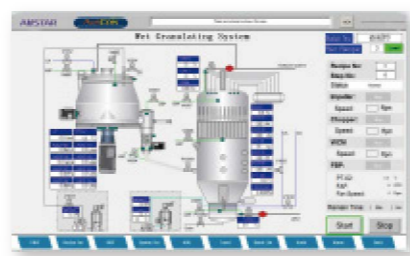
Optional Configurations		
1. Lab granulator can be completed with changeable bowls of 1L, 2L, 4L, 6L, 8L, 12L or 15L to realize more flexible production capacities	7. Pressure tank for binder solution	 Agitator Lifting
2. Solution adding speed controlled by peristaltic pump	8. Explosion-proof	
3. Online metering of the added solution by mass flow meter	9. Low position platform	
4. Tool lift device (8-inch) for the agitating operation for much easier cleaning and inspecting	10. Integrated wet mill	
5. Solution tank (pneumatically-driven, jacket thermal insulation)	11. Cross blade chopper	
6. Audit trail, electronic record and electronic signature in compliance with FDA 21 CFR part 11	12. Solution preparation tank	



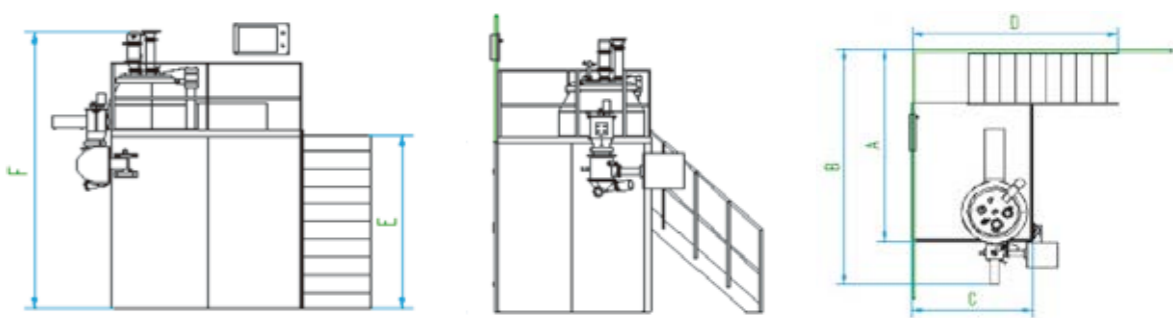
Standard Configurations	
1. Surface roughness: <math><0.4\mu\text{m}</math>	9. Air seal for the bowl lid
2. Platform and basic body supporting parts are made of AISI304 stainless steel	10. Bowl lid sight glass and illuminator
3. Specific ratio of radius to height can easily realize process scale-up of equipment with different model	11. Discharging outlet
4. The solution spraying gun can realize uniform liquid distribution	12. Online monitoring of the product temperature
5. U shape/ lotus chopper	13. HMI IPC control system
6. The agitating speed can be adjusted by frequency inverter	14. Recipe management
7. The chopper rotating speed can be adjusted by frequency inverter	15. Access level management
8. Air sealing system for the agitator and chopper	16. Authority management

Compliant Control Systems

- IPC/PLC-based control system is developed on Wincc software, the Electronic Records and Electronic Signature in compliance with FDA 21 CFR part 11 .
- Good HMI design is used for the control of production and cleaning procedures.
- All parameters, process flow and messages can be displayed on the operation screen.
- Software program backup can be provided.
- Alarm messages can be highlighted on the HMI with special colors to prompt the operators.



Parameters

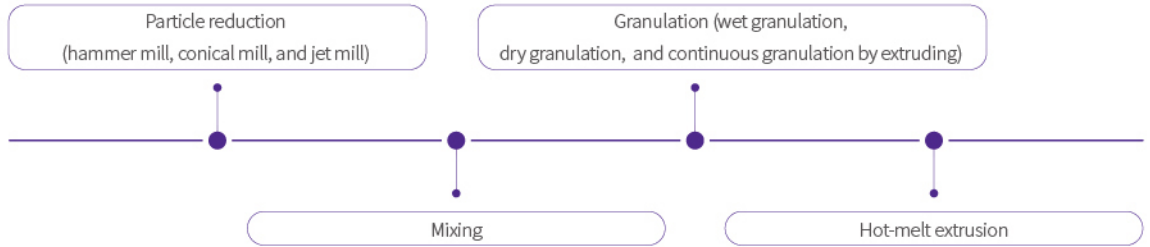


Items	Models	HSG115(changeable bowl)					HSG25
		Gross Volume(L)	2	4	8	12	15
Volume	Working Volume (30%-90%, L)	0.6-1.8	1.2-3.6	2.4-7.2	3.6-10.8	4.5-13.5	7.5-11.25
	Agitator Speed (RPM)	10-1110	10-710	10-560	10-460	10-460	10-360
Chopper Speed (RPM)		1000-4000					-
Power (kW)		3.3					5.2
CA Consumption(m ³ /min)		1.75	1.75	1.75	1.75	1.75	2.07

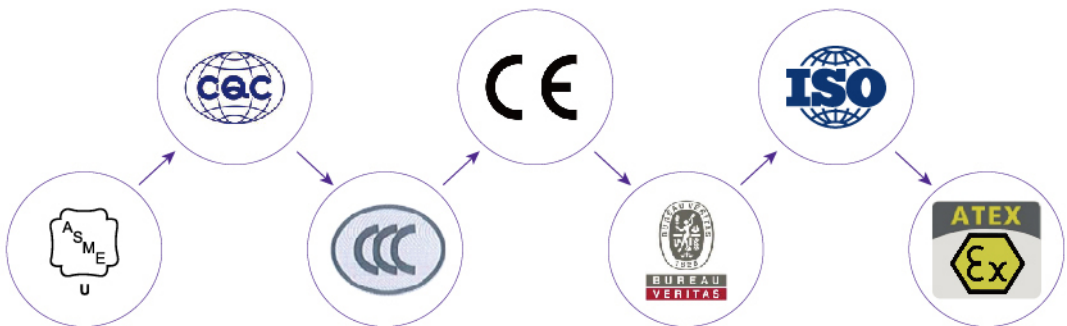
Items	Models	HSG50	HSG75	HSG100	HSG150	HSG200	HSG300	HSG400	HSG500	HSG600	HSG800	HSG1000	HSG1200
		Volume	Total Volume(L)	50	75	100	150	200	300	400	500	600	800
Volume	Working Volume (30%-90%, L)	15-45	22.5-97.5	30-90	45-135	60-180	90-270	120-360	150-450	180-540	240-720	300-900	360-1080
	Agitating Speed (RPM)	10-290	10-260	10-230	10-205	10-190	10-170	10-150	10-140	10-130	10-120	10-120	10-100
Rotating Speed of the Chopper (RPM)		500-4000					500-3000						
Power Consumption(kW)		6.7	7.1	13	13.1	29.9	33.6	33.6	52.2	59.6	73.8	97	123
Compressed Air Consumption (m ³ /min)		2.1	2.13	2.15	2.9	2.96	3	3.11	3.13	3.16	3.87	3.88	3.9
Compressed Air Pressure(Mpa)		0.4-0.6											
Dimensions	A (mm)	2840	2840	2840	2650	2940	3195	3195	3155	3155	3355	3355	3355
	B (mm)	3388	3415	3448	3387	3658	3860	3911	3906	3906	3935	3968	3968
	C (mm)	1556	1556	1556	1750	1920	1920	1920	2020	2150	2150	2320	2320
	D (mm)	3238	3238	3238	3238	3238	3238	3238	3238	3238	3238	3238	3238
	E (mm)	2365	2365	2365	2365	2365	2365	2365	2365	2365	2365	2365	2365
	F (mm)	3445	3468	3496	3616	3676	3728	3770	3835	3888	3936	4083	4136
Weight (kg)		2500	2600	2800	3100	3300	3600	4100	4500	4900	5300	5800	6100

Technical Service Abilities

AUSTAR Powder and Solid Process Research Center is equipped with advanced process equipment for particle analysis and process optimization service. Our experienced R&D and process engineers could assist the following processes:



AUSTAR Powder and Solid Process Research Center is completed with lab and pilot wet granulators for trial test and scale up research. The capacity of lab equipment can achieve 0.3-3kg/batch, and the pilot model could reach from 20-30kg/batch.



AU STAR

www.austarunion.com

Email: info@austar.com.hk