

SOLID DOSE

HIGH SHEAR MIXER GRANULATOR HLSG SERIES



CIMA[®]
Industries Inc.
Pharmaceutical Equipment

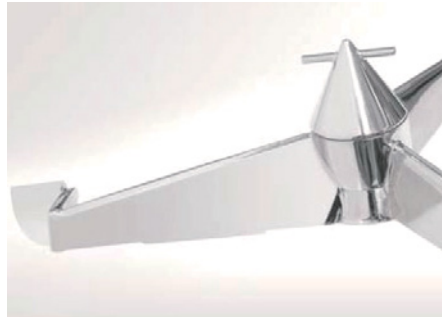


HIGH SHEAR MIXER GRANULATOR / HLSG SERIES



The HLSG is a High Shear Mixer Granulator designed for the dry mixing of powders and wet granulation. Mixing and agglomeration of powder particles are achieved by the combined action of the impeller and chopper and liquid binder distribution system.

It is supplied in a “through the wall” version, and by locating all the auxiliary equipment in a technical area optimizes the room layout according to GMPs and safety regulations.



IMPELLER

The HLSG has a unique impeller design created for the manufacture of pharmaceutical granules.

The impeller has three blades with a little wing on each tip and is driven to obtain the optimum shear for granulation at every speed. It provides the appropriate movement to achieve the highest mixing and agglomeration efficiency.

The impeller has scrapers on the bottom of every blade to assure the minimum tolerance from the bottom of the bowl to prevent product sticking and maximize product yield.



PRODUCT BOWL AND DISCHARGE VALVE

The product bowl is designed with no dead zones for mixing and cleaning. It has a wide curvature radius on the bottom that prevents the sticking of product.

The discharge valve is located on the side wall of the bottom of the bowl and has a GMP design to facilitate discharge operation.

It is also easy to wash in place and has full access for inspection due to the valve housing that can be completely opened.



CHOPPER

The chopper is horizontal, located on the side wall of the bowl with a horizontal shaft and runs at variable speed, counter directional to the impeller to prevent lumps forming.

The chopper can also control granule growth to achieve regular particle size distribution.

PROCESSING IN EXPLOSIVE ATMOSPHERE

The HLSG can be manufactured in conformity with EC Council Directive 94/9/CE-ATEX (100a) to operate in the presence of flammable organic solvents or dusty environments.

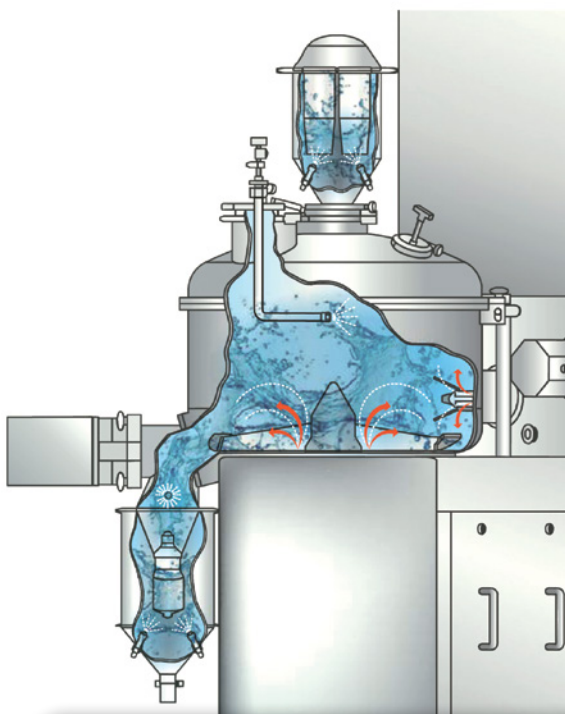
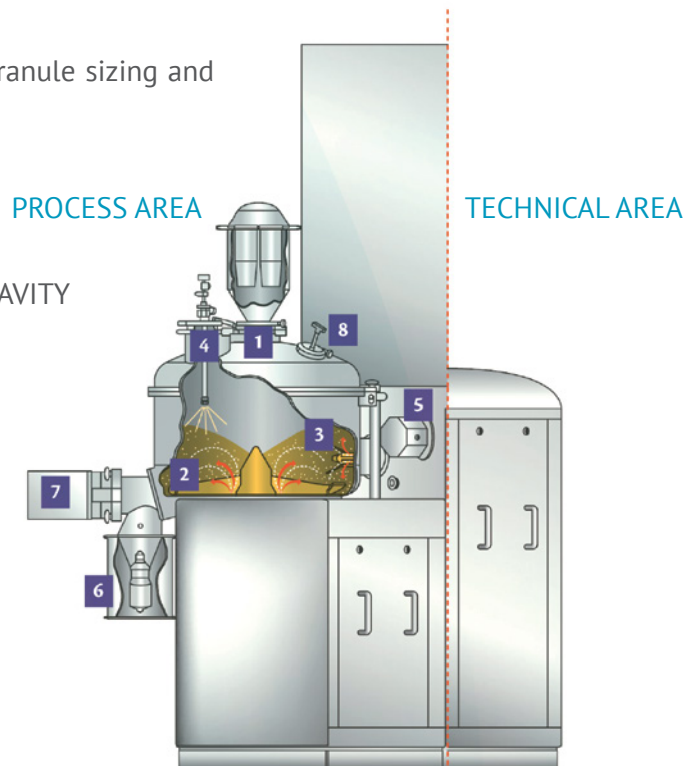
The pneumatic circuit is suitable for use with nitrogen to inertize the system, thus preventing dangerous conditions and adding a further level of safety to the operator.

THE COMPRESSED AIR IS INTRODUCED FROM THE IMPELLER AND CHOPPER SEALS INTO THE HLSG BOWL

IN-LINE MILLING AND GRANULE TRANSFER TO A FLUID BED DRYER

The HLSG can be integrated with the IMILL, for wet granule sizing and direct transfer, in a closed system, to a fluid bed dryer.

1. LOADING OF RAW MATERIAL BY VACUUM OR GRAVITY
2. IMPELLER
3. CHOPPER
4. BINDER SPRAY SYSTEM
5. PERISTALTIC PUMP
6. IMILL-I: IN-LINE MILLING
7. DISCHARGE VALVE
8. SIGHT GLASS AND LIGHT



WIP-WASH IN PLACE

The washing cycle is basically carried out by introducing the compressed air from the impeller and chopper seals into the HLSG bowl, then running both impeller and chopper at high speed for a certain time. This operation can be repeated with different washing fluid until the final rinsing. Washing heads are strategically located to wash difficult to clean zones when the advanced washing kit is provided.

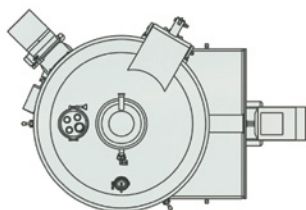
CONTROL SYSTEM

The HMI (Human Machine Interface) panel allows the carrying out of the process in either manual or fully automatic mode. Automatic recipes for processing or cleaning can be edited and easily recalled every time to assure batch or washing cycle reproducibility.

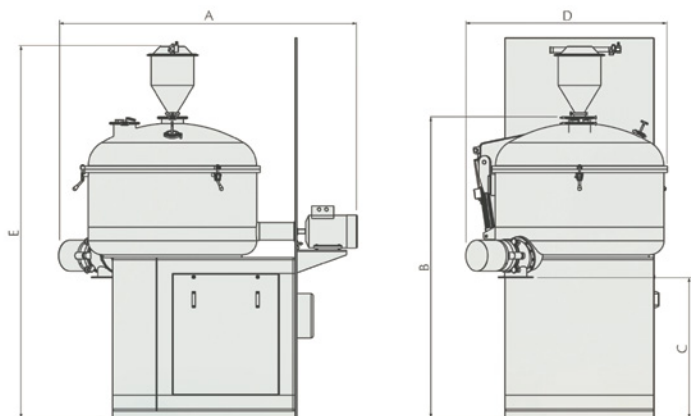
The software is prepared to manage different access levels of password and electronic batch records and printouts are also available in compliance with FDA CFR21 part11.

The HMI is suitable for communication in a local network when a granulation suite is set-up with a LGL Fluid Bed Dryer and other ancillary equipment. It is also possible to arrange communication with a plant wide supervision system or for maintenance via modem.

On request the HLSG can be provided with specific ports to integrate control instruments requested by PAT approach, such as torquemeter, FBRM, NIR, acoustic detectors, to determine moisture content, content uniformity and monitor granule growth.



High-Level Installation and 12 bar ATEX Wet Granulator.



HLSG	60	120	300	600	900	1200	1500
A (mm)	1380	1720	2180	2430	2620	2750	2850
B (mm)	1520	1620	2000	2400	2650	2700	2830
C (mm)	870		1060	1240		1300	
D (mm)	850	1050	1315	1500	1700	1800	1900
E (mm)	2120	2220	2600	3070	3320	3370	3490
870	1060	1240	1300D(mm)	850	1050	1315	1500
Bowl capacity (liters)	60	120	300	600	900	1200	1500
Working capacity (liters)	minimum 25%-maximum 70%						
Impeller power (kw)	4	11	18.5	30	45	55	75
Impeller speed (rpm)	15-275	15-220	10-165	10-130	10-115	10-100	10-97.
Chopper speed (rpm)	700-1,450 (up to 2,000 with frequency converter)						
Weight (Kg)	500	750	2000	2800	4200	5200	5500

Environment requirements, temperature 5-40 °C, relative humidity: 70%(maximum). Altitude: 2000m (maximum)



CIMA Industries, Pharmaceutical Machinery

World Trade Center, 1st Floor, Commercial Area, Street 53 Marbella. PC 0832-00155 WTC
Panama, Republic of Panama. Tel. +507-205-1915 Fax. +507-205-1802
www.cimaindustries.com sales@cimaindustries.com



SHANDONG SMA PHARMATECH CO., LTD

165 Huabei Road, High & New technology Development Zone, Zibo City, Shandong Providence, China.
Poscode: 255086 Tel. (+86) 533 3813925/3813011 Fax. (+86) 533 3813012/3813002
www.sd-sma.com