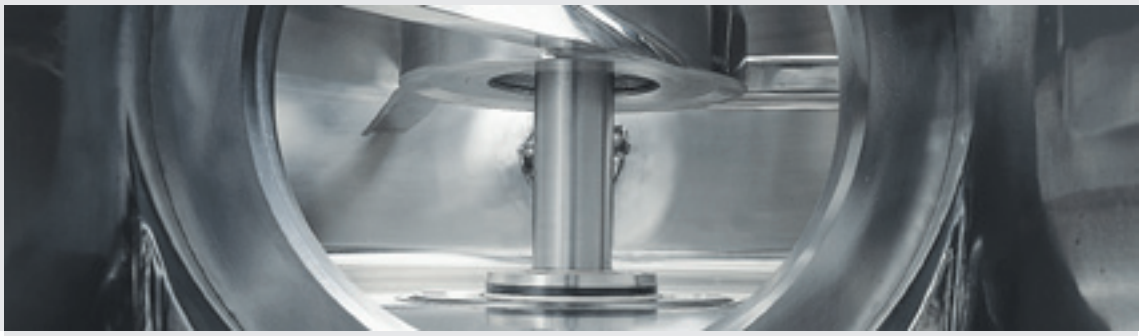
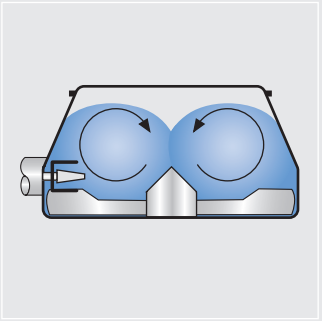
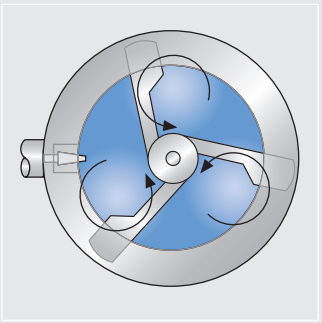


Pharma Mixer P 300 to P 1800

Mixing and Granulating.

DIOSNA
LINXIS GROUP





Exact control of product characteristics.

DIOSNA mixer-granulators are used by leading companies worldwide and guarantee the safe and reproducible production of high-quality granules – even with most difficult recipes and differing filling volumes.

- The precise construction and robust design allow for small tolerances e.g. between bowl base and mixing tool, providing better mixing and product yield.
- The large mixing blades with enlarged blade tips are positioned tangentially to the central hub. This ensures a good circulation of material even at low speed.
- The cutting edges of the chopper are positioned in the zone with the highest circumferential speed which causes optimal densification of the granules and precise control of the particle size range.
- Even thick products can be mixed and granulated without problems.
- The special bowl profile allows filling volumes between 30 and 90 %.
- For many recipes we obtain very good results also at smaller filling volumes.
- Easy scale up due to identical bowl profiles and the same tip speeds of the mixing tools.

P 600 in modular design, CIP ready, for processing of highly active substances.

Installation and integration.

The mixer-granulators of this series are designed for "free standing" or "through-wall" installation. A separate operator platform is not necessary. The ideal position is in the corner of the production room against the wall shared with the technical area behind the room. This gives minimum space requirement, fewer external surfaces to clean, allows the operator panel (e.g. PC) and chopper drive to be installed through the wall. For maintenance and calibration all essential components are accessible from the technical zone.

The machines are clad to floor level. Vacuum pumps, CIP valves, granulating liquid pumps (complete with the control hoses etc.) are all integrated in a GMP-correct way: Easy cleaning of the outside surfaces.

Pharma mixer P 300.

Vacuum feeding by manually operated suction lance.

Containment design of mixer lid with split butterfly valve.

Explosion-protected moveable granulation liquid preparation vessel with agitator. With integrated control.

Feeding and liquid preparation.

Vacuum feeding

The charging of the mixers with solids is usually done using vacuum. A vacuum pump, which generates a partial vacuum in the mixing bowl, is connected to the filter at the mixer lid. The materials are continuously sucked in through a connection in the lid either using a manually held suction lance or from a special container pick up system. The exhaust air passes through a process filter which is periodically back-flushed by compressed air and then to a police filter, so that no dust is released. The suction hoses and the process filter can be integrated in the automatic cleaning.

Gravity feeding

DIOSNA provides different kinds of gravity feeding systems from containers, e.g. from higher floors or by lifting columns. When using highly active materials, high containment valve systems can be incorporated.

Addition of granulation liquid

For the preparation and storage of the liquids DIOSNA offers complete self contained units. These are available with insulated heating jackets, agitators, temperature probes, filling level probes, flow meters, valves and in pumps as required. The installation is available as a fixed free-standing unit in "through the wall" design or in moveable design. All can have self-contained controls (even Ex rated) or can be connected to the mixer's PLC.

Automated sampling under contained conditions.

Stainless steel filter suitable for CIP.

Cleaning and containment.

- To ensure thorough cleaning, the air purged shaft seals on the main tool and chopper are flushed with water in place of air.
- By repeated, partial filling and discharge of the bowl whilst the mixing tool and chopper are running, nearly all product-contacting parts can be cleaned.
- Using additional cleaning nozzles and filters, designed for CIP, the cleaning can be completely automated (CIP).
- Automated cleaning is also installed in the charging and discharging systems, especially if operated under containment conditions.
- After cleaning the DIOSNA Toollift System lifts the mixing tool pneumatically to allow easy checking of the cleanliness of the underside of the tool and the sealing area.
- High containment valves, e.g. split butterfly valves, together with a WIP- or CIP-cleaning allow the processing of highly active substances under contained conditions.

Toollift System:
Mixing tool in raised position.

Operator friendly control using an industrial PC.

Control and visualisation.

The pneumatic and electrical control elements are installed in separate switch cabinets in the technical zone. Controllers from Simens or Allen Bradley are used as SPS. Machine operation, visualisation and preparation of reports are performed at the operating terminal using a membrane keyboard or touch screen. The use of a PC offers flexibility, comfort and safety:

DIOSNA have developed a comprehensive user programme based on the software package Wonderware Intouch. It meets all the requirements of the 21 CFR Part 11 and can be connected by network to the customer's PCs. Furthermore remote maintenance and assistance and updates can be offered by DIOSNA via a modem installation. The validation qualification is made using DIOSNA's / customer's standard documentation according to current GAMP guidelines.

Pharma Mixer P 600 designed for installation „through the wall".

Always on the safe side with DIOSNA

Explosion protection

The processing of highly flammable solids or organic solvents requires special measures for explosion protection.

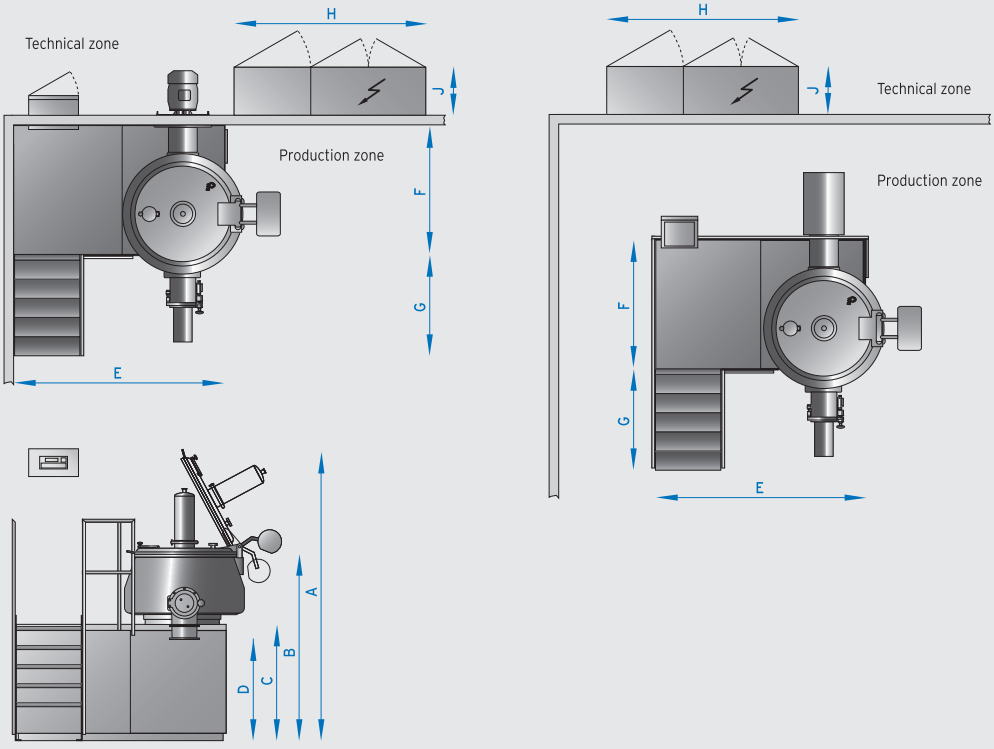
Your safety is guaranteed by reliable protection procedures such as inerting with nitrogen or explosion shock-resistant design, a technique mainly used for mixer-fluid bed dryer combinations.

DIOSNA considers the appropriate national requirements of the country of use e.g. the current CE-guidelines (ATEX) or also US-standards.

Shock-resistant: DIOSNA P 400 with sieving mill.

Shock-resistant: DIOSNA P 400 with sieving mill.

Technical data and dimensions



Dimensions *	A	B	C	D	E	F	G	H	J
P 300	2515	1700	800	900	1800	1000	645	2000	400
P400	2775	1940	1200	1095	2200	1365	1045	2000	500
P 600	3030	1950	1200	1055	2200	1365	1045	2000	500
P 800	3385	2240	1400	1255	2400	1650	1250	2800	500
P 1250	3755	2350	1600	1265	2600	1850	1250	3200	500
P 1800	4250	3000	1800	1600	3000	2200	1600	4000	600

Technical Data	Bowl volume (l)	Effective bowl volume up to (li)	Tool Power (kW)	Tool speed (rpm)	Chopper power (kW)	Chopper speed at 50 Hz. (rpm)
P 300	285	255	18,5	5 - 155	4/5,2	1500/3000
P400	430	385	22	5 - 125	7,5/9	1500/3000
P 600	615	550	45	5 - 110	10/12	1500/3000
P 800	800	720	55	5 - 105	14/16	1500/3000
P 1250	1350	1200	90	5 - 90	21/24	1500/3000
P 1800	1800	1600	132	5 - 75	32/38	1500/3000

* Unity in mm
Data valid for basic design.
We reserve the right to change technical data, design and specifications.

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