



CAP Fluid Bed Batch Processor

Drying, Granulating, Coating.

Quality, Experience and Innovation

Fluid bed processing for many applications.

Modern and new product forms are becoming more important in the solids processing aspects of many industries. At the same time the demands for improved basic materials and formulations are rising.

When compared with other methods, the processes of heat exchange and mass transfer found in fluid bed processing make the drying process considerably faster. Also the high drying speed, excellent mixing quality and individualised particles allow for a specific alteration of the product's physical properties. Spray granulation or coating processes can be carried out with either Top-, Bottom-, or Tangential-Spray processes to transform an active substance into the required product form.

Process consulting
Product and process development
Plant engineering
Production, installation
Qualification, start up
Service, training

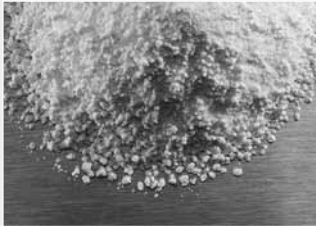


Laboratory plants
Pilot scale plants
Production plants

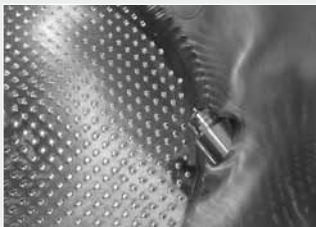


CAP 400 with swivelling product bowl

Innovative systems which work.



Granulate



Tangential spray nozzle



Coated pellets



System for pellet coating



NIR sensor on fluid bed

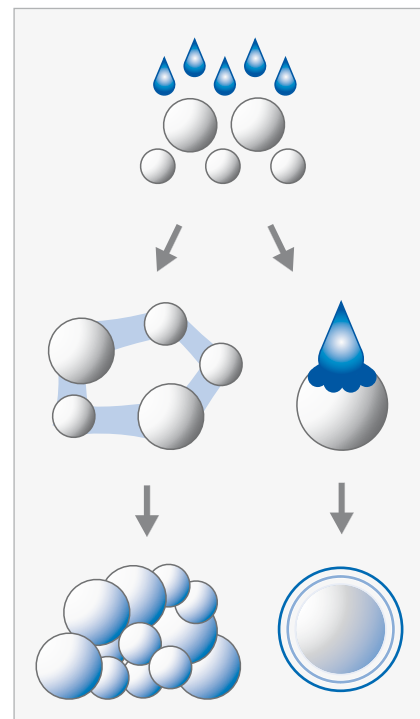
- **Safety:** 12 bar pressure-shock proof design, using proven safety concepts
- **Efficiency:** reproducible processes and automated programmes with low set-up times
- **Containment:** special solutions for highly active substances
- **Cleanability:** comprehensive cleaning concepts from WIP to CIP
- **Effective:** optimised rotating air flow using special air distributor plates
- **Reproducible:** Top-Spray- / Bottom-Spray- / Tangential-Spray-processes
- **Future proof:** designed for retrofitting of process components when needed
- **Qualification:** pharma standards according to GAMP 5
- **Quality control:** Integration of PAT
- **Reliability:** Don't worry, it's a DIOSNA!

Process solutions suiting your needs.

In our laboratory we can simulate, optimise and develop different processes at various plant sizes.

We offer support to find the most suitable process solution to achieve the required product characteristics, such as density, particle size distributions, tableting characteristics, product surface characteristics and release profiles.

The process will be designed after intensive investigations to ensure reliable scale-up to production size batches.



Granulation or coating processes in Top-, Tangential- or Bottom-Spray operation.

A complete service from one source

Production success.

In addition to technical safety considerations, optimisation of the process is always very important. Optimal air flow, efficient feeding and discharging concepts combined with our technical experience guarantee high yield, quick processes and a reproducible quality of the final products. DIOSNA offers equipment for every aspect of CAP fluid bed processing, including granulating liquid tanks, cleaning stations, wet and dry granule milling, lifting columns and vacuum conveying systems. All equipment components are integrated into the overall system control. PAT technology, like NIR and particle size monitoring, can be integrated as required.

Sometimes less is more. DIOSNA does not have the ambition to build all peripheral components by ourselves. Instead we work with a network of certified partners who share our philosophy of high quality and functionality and who maintain a leading role in their field of activity. This strategy provides our customers with integrated systems without the risk of weak links in the process chain.



DIOSNA CIP cartridge filters



Stainless steel filter cartridges



Double chamber shaking filter



Textile cartridge filters

Effective process controls.

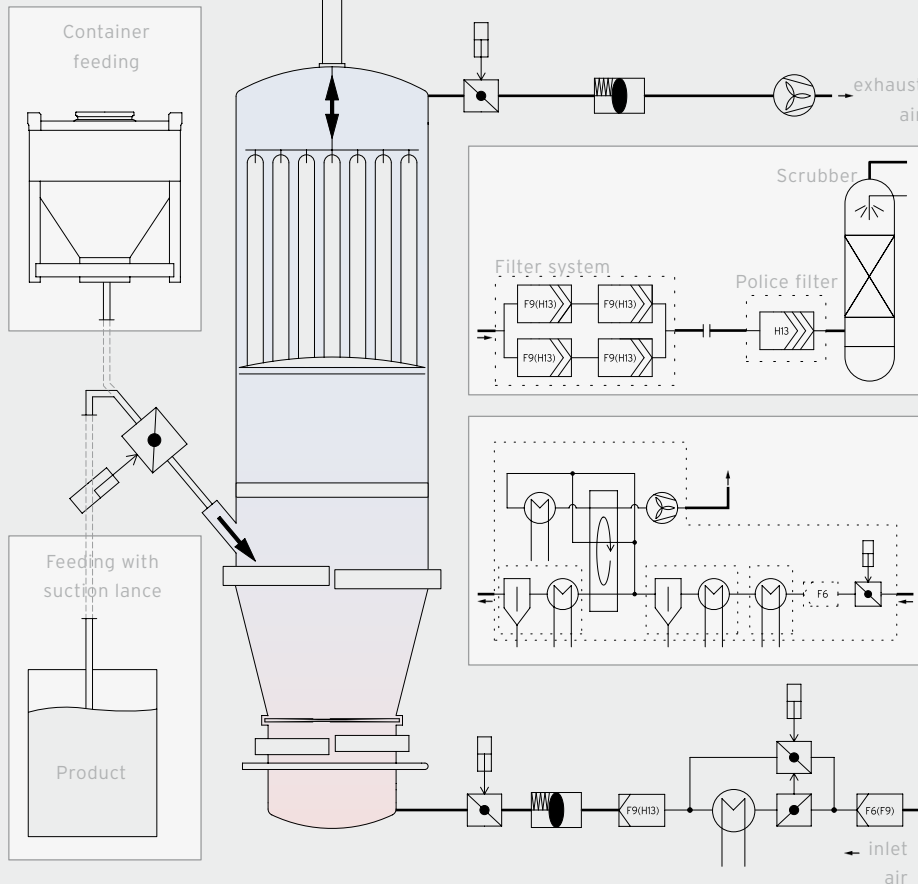
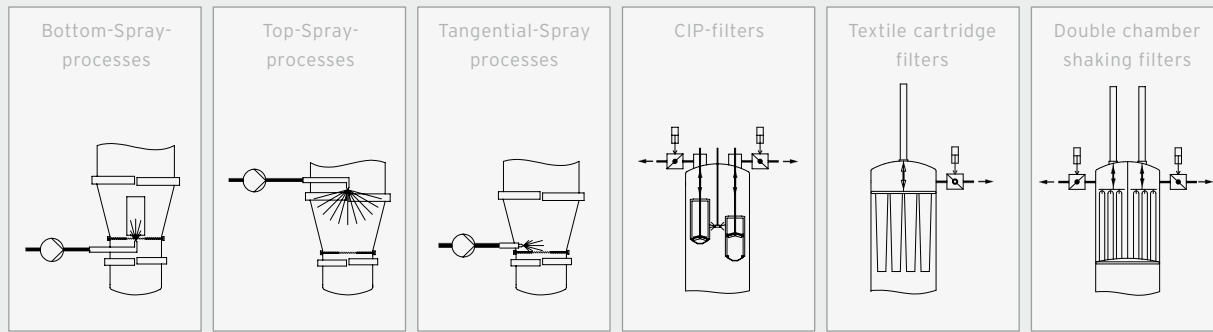
The control system is an important element of the plant. DIOSNA develops the hardware and software on the basis of industry-standard systems - together with the DIOSNA remote maintenance concept a quick and efficient support around the world is guaranteed.

Moreover, the intuitive operator guidance and recipe management interface provides operator-friendly operation.

The software used complies to 21 CFR Part 11 and offers comprehensive acquisition and documentation of batch data.



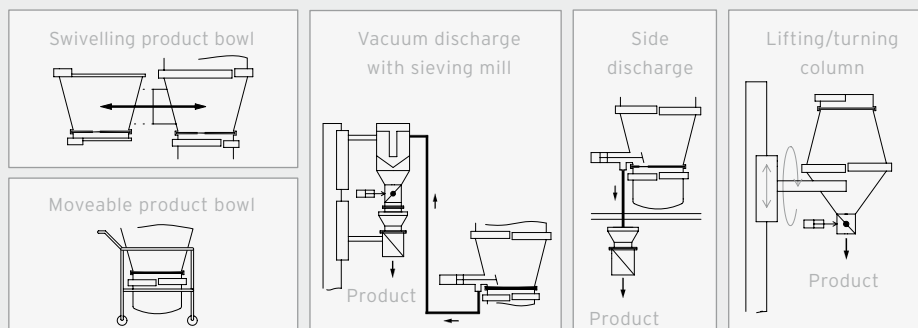
CCS controls for comprehensive and comfortable operation



CAP. Modular Concept

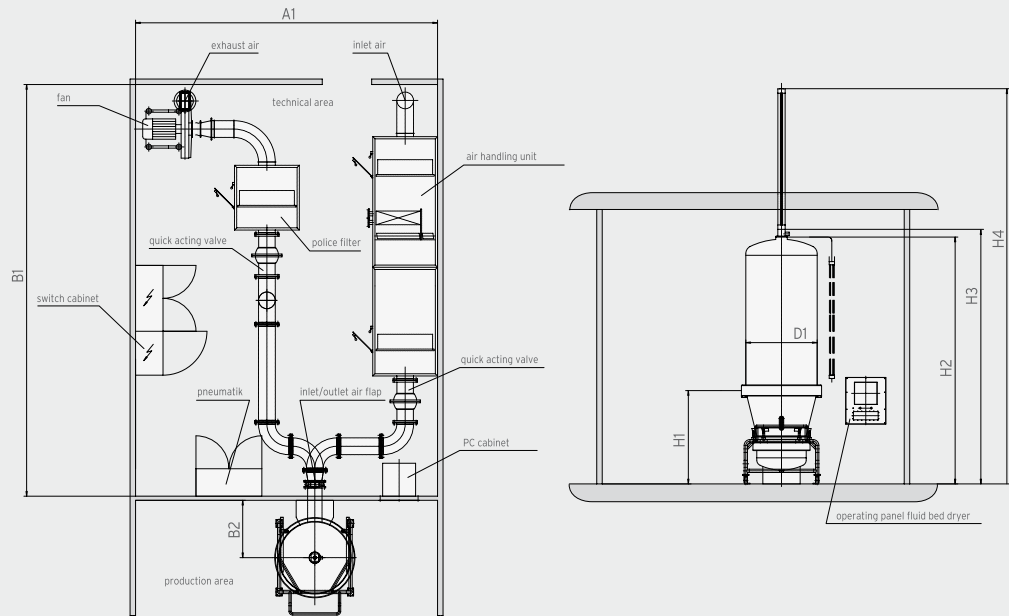
The CAP fluid bed process plants are built in modular design. This allows simple adjustment to your needs. The main elements are the fluid bed processor, the inlet air handling unit and the exhaust air handling unit.

The process air for fluidising the product is fed through the air distributor plate from below. The tangential slot arrangement of the distributor plate guarantees a homogeneous product movement and highly efficient energy utilization. For spraying processes this results in a homogeneous product quality. Before the process air leaves the plant, it is cleaned by a built-in filter system. Single chamber, double chamber and cartridge filters are the available alternatives.



Depending on the application, the most suitable components and concepts are chosen for the down-stream exhaust air handling: static police filters, dedustable quick change filter packs, recirculation systems with solvent recovery.

DIOSNA. Production Scale Processing Plants



* product and process dependent

*² basic design incl. vacuum discharge

*³ saturated steam

*⁴ cooling water 6/12°C

Data refer to the basic design.
Further plant sizes on request.
We reserve the right to change
technical data and design.

Dimensions (mm)	D1	H1	H2	H3	H4	A1	B1	B2
CAP 25	450	825	2450	-	-	4000	5000	550
CAP 60	700	950	3100	3250	5000	4000	5000	780
CAP 150	900	1220	3600	3750	5700	4500	5500	850
CAP 300	1200	1500	4500	4650	7400	6000	7000	1000
CAP 400	1200	1500	4600	4750	7600	6000	7000	1000
CAP 600	1400	1725	4900	5050	8100	6500	7000	1200
CAP 800	1550	1875	5250	5400	8550	7000	8000	1300
CAP 1000	1700	1950	5100	5250	8300	7500	8000	1400
CAP 1250	1900	2200	6000	6150	10800	8000	9000	1600
CAP 1800	2100	2400	6200	6350	11300	8500	9500	1700

Technical Data	Total bowl volume (l)	Typical Batch size range (kg)*	air flow rate (Nm ³ /h)	Power supply (kW)* ²	max. compressed air (Nm ³ /h)* ²	max. steam consumption (kg/h)* ³	cooling water consumption (m ³ /h)* ⁴	Total WIP supply (m ³ /h)
CAP 25	27	4 - 12	350	7,5	10 - 130	17	1	3 - 4
CAP 60	100	15 - 45	900	11	30 - 160	48	2	3 - 4
CAP 150	200	30 - 90	1650	22	40 - 160	80	4	3 - 4
CAP 300	490	70 - 190	2700	30	40 - 160	146	6	4 - 5
CAP 400	490	70 - 220	3500	30	40 - 160	170	7	4 - 5
CAP 600	760	110 - 340	4500	37	50 - 170	208	9	4 - 6
CAP 800	1010	150 - 450	6000	55	50 - 170	295	12	4 - 6
CAP 1000	1180	180 - 530	8000	75	60 - 180	390	17	4 - 6
CAP 1250	1700	260 - 690	9500	90	60 - 180	460	20	5 - 7
CAP 1800	2200	330 - 880	12500	110	70 - 190	610	25	5 - 7



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