

COATING TECHNOLOGY

PHARMACEUTICAL INDUSTRY

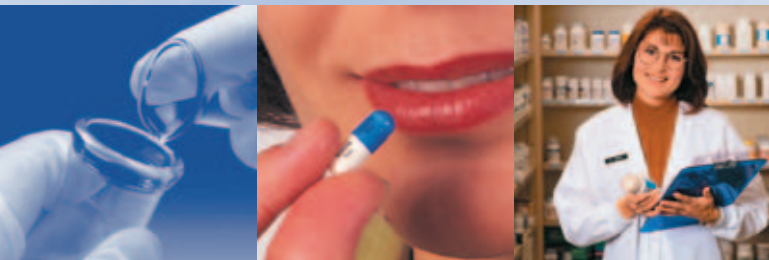


THE COMPANY

As one of the founders of modern coating technology, DRIAM today is the market leader in the development of large capacity coaters with perforated, multi-sided pans and a patented process of air guidance, utilizing ducts mounted on the outside of the pan. DRIAM is also leading in an area of high-volume coaters in various branches and has been offering state-of-the-art equipment for over 25 years.


Founded in 1951 for the manufacturing of an automated welding system for spiral pipes for pipelines and automatic welding of automobile bodywork, the company established a name over many years exclusively as a machine designer. Later on, the branch Coating Technology developed into the major business of DRIAM. In our present position as a manufacturer of turnkey coating installations, we assist our customers in many branches to solve coating problems and offer our well-established technology. We are fortunate to have as our customers companies in the confectionery, pharmaceutical, chemical, detergent, fertilizer, agricultural seed and animal feed industry. We are a worldwide company represented on each continent, with subsidiaries in North America and Eastern Europe and also work closely with our licensee in Japan.

In order to react fast to requests from customers and to accommodate special projects, in the 80s we concentrated on efficient and flexible manufacturing. A long-term reliable cooperation with selected suppliers in our region allows us to continually improve the quality of our products and permits us to innovatively and efficiently improve our machines.





THE MARKET




For several years now the pharmaceutical industry has gone through significant changes. Large companies have merged and decentralized existing manufacturing locations. Smaller companies emphasize their core competence and concentrate on special products. Developing and producing a safe and effective product is the common and most important goal for all of our customers. DRIAM Anlagenbau has associated with the pharmaceutical industry for many decades. The first automated installations for film coating and suspension coating were developed and brought into the market in the 70s. As a result, the trade name DRIACOATER® is a well-recognized brand name.

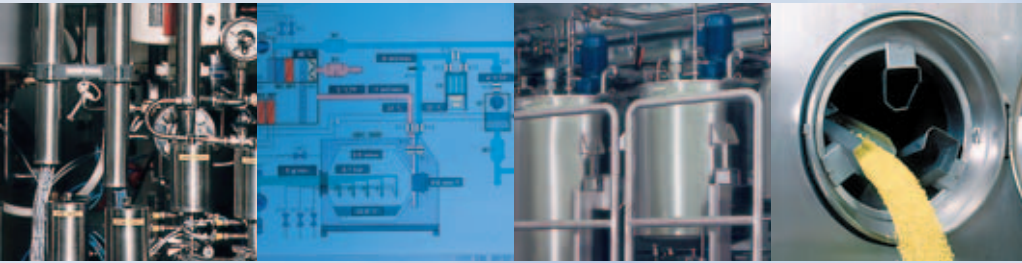


ESSENTIAL REQUIREMENTS FOR INDUSTRIAL APPLICATION OF COATING INSTALLATIONS

DRIAM Coating Technology is a valued partner for the pharmaceutical industry world-wide. Film coating and suspension coating represent daily tasks for DRIACOATER® installations. The essential requirements for a pharmaceutical coating operation are as follows

- cGMP / FDA conformity
 - Qualification
 - Validation
 - Safe reproducible production sequences
 - Excellent cleaning
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DRIAM COATING TECHNOLOGY



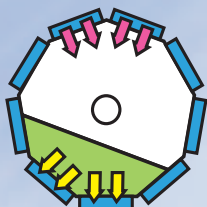
DRIACOATER® represent modern machines with horizontal, perforated drums that distinguish themselves by high drying efficiency. The necessary drying air is forced through the entire product bed and fully controlled during the process. This, along with the built-in mixing baffles and its nine-sided drum, will guarantee an even coating of the tablets.

Modern pharmaceutical processing installations represent a complex system in which reliability and effectiveness are the result of the interacting of several components.

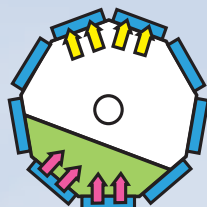
- Actual coater, which is being considered as the central core unit
- Auxiliary installations for dosing and spraying of the film solution
- Conditioning of the process air
- Filtering of the exhaust air
- Preparation and storage of spray solutions

Process values are defined in the manufacturing formula and reflected in the combined efforts of the various components. An irrevocable requirement for the pharmaceutical industry is that the entire system can be minutely qualified and validated.

Principle of forcing the process air through the product bed



Direct airflow from the top through the product bed with air exhaust at the bottom



Reverse airflow from the bottom through the product bed with air exhaust at the top

DRIACOATER® DRC 500/600 VARIO



SUBSYSTEMS

Even though the actual coater is mostly built as a standard unit, the various subsystems represent wide possibilities to consider specific requests for customers, e.g. explosion protection, external CIP stations, loading and unloading systems, customer designed controls, process air conditioning, exhaust air cleaning, organic solvents recovery.

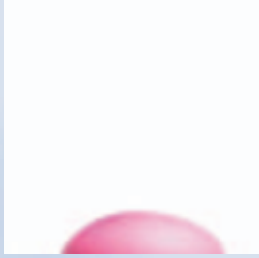
Control



Solution preparation



Spraying



Process air

Loading

Unloading



DRIACOATER® 1200-1600/1.25



DRIACOATER®
DRC 1300/0.7



THE DRIAM LAB

Without an efficient R&D department the success of the DRIAM Coating Technology would be impossible. The DRIAM Laboratory is one of the pillars of the company. Our employees are experienced in the food, chemical and pharmaceutical industries. They make sure that our machine components are thoroughly tested and meet the requested production requirements. During tests with laboratory batches, we demonstrate day in and day out the efficiency of DRIAM Coating Technology and are able to secure satisfied customers. With the knowledge acquired during testing, our technologists and application engineers are tailoring our installations according to the requirements stipulated by the customers. Within the framework of our schooling and seminar programs we make a valuable contribution to the transfer of knowledge in the coating area.



Take advantage of our many years of experience in the coating technology.

What can we do specifically for you?

- If you are not familiar yet with coating technology and would like to have an idea about the various possibilities
- You develop a new product and require state of the art equipment
- You already operate a coating installation and would like to optimize your process
- You need pharmaceutical products for clinical samples
- Your marketing department needs product samples for testing of the market
- You would like to get your employees acquainted with the operation of automatic coating installations
- You need additional production capacity and would like us to produce your product as a contractor



REFERENCES

A typical user of DRIAM Coating Technology can be found under well-known pharmaceutical companies throughout the entire world. Aventis, Bayer, Novartis, Hoffmann-La Roche, Merck Sharp & Dohme, BASF-Knoll, Glaxo as well as numerous other manufacturers use our DRIACOATER® installations.

TURNKEY PROJECTS

Since the introduction of the DRIACOATER® in the worldwide markets, the degree of involvement of DRIAM has been significantly broadened. Not only are we offering individual coating machines but also complete turnkey projects. DRIAM provides complete detail planning, purchasing of all components, along with installation and qualification services. Customers are accompanied and supported through the entire project. This is especially important for necessary process adjustments as well as for the development of new products and processing sequences supported by many years of DRIAM experience.



DRIAM - YOUR PARTNER

DRIAM is an internationally operating company and is present in all markets in which the coating technology is applied in all its variations.

- The design, engineering, start-up and operational support for special solutions around the coating technology are our concern. Our customers take advantage of the permanent development of our technology and services.
- We meet our customers' requirements and realize their targets with competence and consistency.
- Our staff is well trained and experienced to cope with all demanding tasks of our customers.
- Long-term relations with strong partners in the sales organization guarantee perfect communication with our customers and consideration of the market singularities.



Manufacturing program

- **DRIACOATER®**
- **DRIACOATER® (Pharma)**
 - Perforated, horizontal coating installations
- **DRIAMAT**
 - Non-perforated, horizontal coating installations
- **DRIABELT**
 - Belt coating machines
- **DRIACONTI**
 - Continuous coating systems
- **Transport and weighing equipment**
- **Intermediate storage**
Finished product silos
- **Solution preparation**
- **Production control**
 - CAM / CIM
- **Process control**
 - PLC controls
- **DRIAM LAB**
- **Service, Product and process engineering**



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