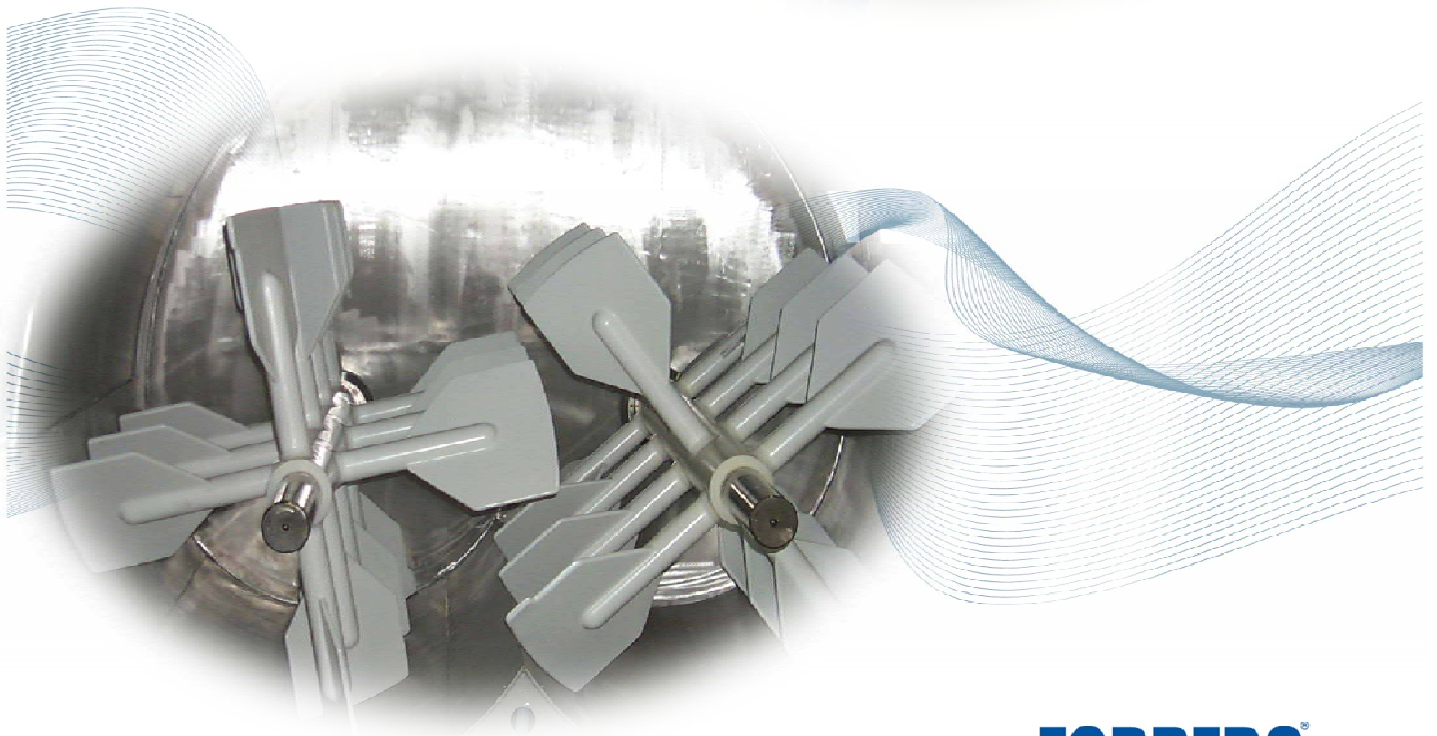


Forberg® Rotating Vacuum Coater (RVC)

The natural choice for:

- Core vacuum coating
- High energy feed
- Optimum penetration of liquids



FORBERG®
The smartest solutions

Mixing and vacuum process technology

Process technology

The Forberg® Rotating Vacuum Coater RVC represents the top of the line Forberg® vacuum coater. It has been especially developed for the core coating of aquatic feed extrudates, feed pellets, pet food kibbles and food extrudates. The very gentle mixing and coating of the product and the outstanding process reliability makes the machine an ultimate success. The well-proven process technology is documented by first class references world wide.



Typical applications

- Aqua feed industry for the core coating of the extrudates with fat, oil and medicine.
- Animal feed industry for the coating of poultry pellets with additional fat.
- Food industry for the coating of muesli cereals with flavour, sugar and vitamins.
- Pet food industry for the equal distribution of antioxidants, vitamins, medicine, flavour and fat.
- Pharmaceutical industry for research purposes and product development.
- Chemical industry for the coating of porous bulk material.

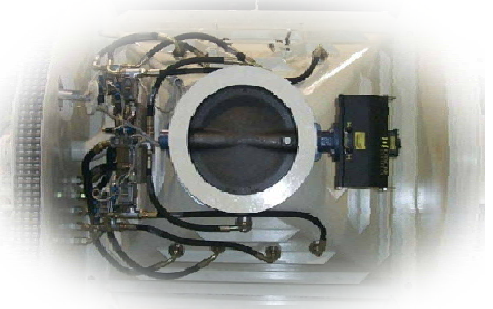
Process technology

The process of vacuum (core) coating is based on the principle that a pressure difference allows for additional penetration of a liquid into a porous product. In the case of the Forberg® Rotating Vacuum Coater the pressure difference is created with the help of vacuum. The air inside the product is evacuated and allows for later penetration with liquids. On the "air-empty" product, liquids are sprayed and due to the constant mixing action every particle is carefully surface coated. After a perfect surface coating (which is a precondition for the optimum coating results) the air is released back into the mixing/vacuum chamber. The pressure equalisation is the most important step of the process and is fully computer controlled. Depending on the base products, kind of liquids and process targets, different release curves can be programmed to provide the best possible core coating (penetration) effects. The process can be used to apply multiple layers of liquids or "seal" the surfaces of the product. For fish feed pellets for example, an additional penetration of up to 40% of fat and oil can be achieved. These so called post extrusion or post-pelleting applications also have the benefit of saving heat sensitive ingredients, while adding them at a later stage in the process.



Machine technology

The Forberg® Rotating Vacuum Coater is already the third generation of coaters. In the beginning a standard twin shaft mixer was used for surface coating, but the penetration results were limited due to the natural absorbance of the base material. In order to increase the penetration a pressure difference with the help of vacuum was applied. The process worked just perfect, only the mechanical side needed to be improved. In order to have a more reliable process and smooth operation Forberg finally came up with the idea to put a standards twin shaft mixer on a rotating frame. This innovative concept led to an easy-to-seal mixing chamber.



Today the Forberg® Rotating Vacuum Coater is sealed with the help of a reliable industrial butterfly valve. The absence of the doors at the bottom of the mixer allows to manufacture the machine with a smaller gap between the paddles and the mixer housing. In addition the breakage of the products in the gaps of the doors is completely eliminated. The updated third generation today represents the top of the line vacuum coaters and shaft mounted gearboxes increase the reliability even further. Since the applications are very versatile and depend on the individual customer many different options to upgrade or modify the standard machine are offered.

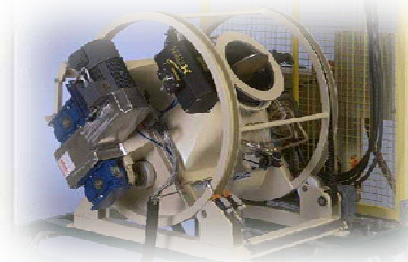
Rotation

Rotation (how it works)

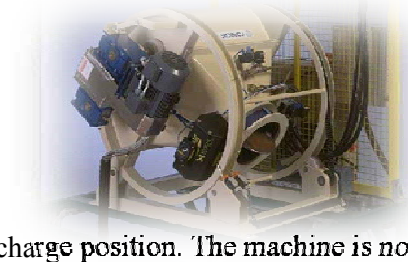
Charging and spraying position. In this position the machine is charged with material and after the closing of the butterfly valve, the air in the machine is evacuated. The spraying of liquids as the first step of the coating process can now start.



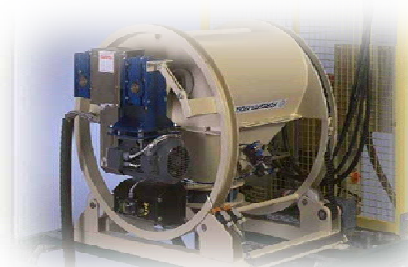
Rotation starts. After the finish of the coating process, the machine turns for discharging. The whole rotation only takes a few seconds..



Rotation continues. The RVC turns upside down. The picture also shows the maintenance position of the machine. Without the bottom doors free access is given and cleaning and maintenance is easy.



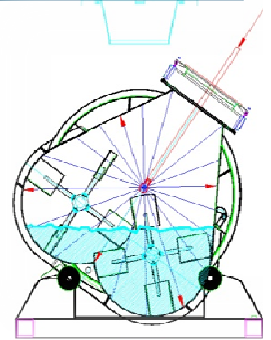
Discharge position. The machine is now ready to discharge the finished products into a hopper. The filtering and surveillance of the evacuated air is properly done to protect the environment.



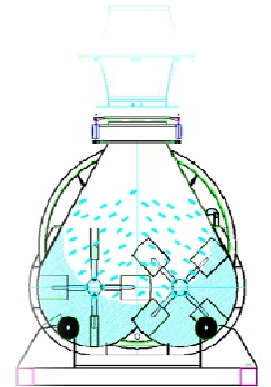
Washing down

Wash down (option)

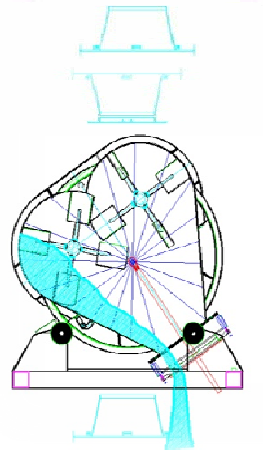
1. **Water filling.** For fully automatic cleaning in place (CIP) the machine can be filled with water (pressurised as an option) in a 20° off position. The special washing liquid can be stored in a tank above the machine to minimise filling time.



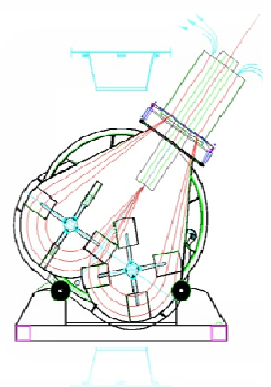
2. **Washing process.** For optimum cleaning results of the housing and mixing paddles, the machine starts mixing and creates a heavy turbulence of the washing liquid. The shafts will also counter-rotate to improve the washing results. Depending on the products warm cleaning water or any other cleaning liquid such as alcohol, gasoline, ammoniac, etc. can be used.



3. **Discharge of washing liquid.** The washing liquid can then be discharged in a recycling system or drainage (depending on the product). This technology clearly separates the product from the washing liquid. In conventional systems it has always been a problem to separate this from the product line.



4. **Drying of machine.** To reduce the time for cleaning the system it can be equipped with an automatic dry out device. Hot/warm air is blown into the machine to dry out the mixer body and the shafts. The moisturised air can be filtered. This process helps to reduce drying time significantly and avoids product damage due to unwanted moisture for the next batches being produced.



Dimensions of the Forberg® Vacuum Coater

Model volume	Capacities in litres	Motor size (kW)	Vacuum pump kW	Length (mm)	Width (mm)	Height (mm)
F-6-RVC	2,5-6	0,37	0,37	1185	700	1340
F-60-RVC	25-60	2x1,5	1,5	2950	2300	2400
F-120-RVC	50-120	2x2,2	1,5	3060	2430	2670
F-500-RVC	200-500	2x4	11	3400	2500	2050
F-1000-RVC *	500-1000	2x7,5	15	3750	2750	2450
F-1500-RVC *	750-1500	22	2x15	4200	3110	2670
F-2000-RVC *	1000-2000	30	2x15	4500	3500	3050
F-2500-RVC	1250-2500	37	2x15	4900	4000	3350
F-3600-RVC *	1500-3600	45	3x15	5500	4950	4430
F-5000-RVC	2000-5000	55	3x22	5800	5200	4500

Models marked * are our standard delivery program.
Measures and powers are only guidelines and can deviate, depending on application.

Technical data can be changed without any notice. Measures and weights must not be used in engineering.



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