



WE WORK CLOSELY WITH OUR CLIENTS TO UNDERSTAND THEIR NEEDS AND PROVIDE A CUSTOMISED SOLUTION THAT WILL ALLOW THEM TO PRODUCE VALUE-ADDED PRODUCTS TO THE MARKET.

## PORTABLE AIR TRAY DRYING



## WHAT MAKES US DIFFERENT.

### RAPID FEASIBILITY TESTING AND PROTOTYPING

- Research and development can be a time consuming and often costly process. The Rexmoi® Air Tray Dryer allows companies to quickly test the feasibility of their products.

### SCALABLE

- Scalability is not a concern as the unit can produce both small and large volumes to meet customer's needs.
- Machine modifications can be made in order to increase production output.

### PORTABLE

- The Rexmoi® Air Tray Dryer is accessible to all. It can be transported behind any SUV, with the added ability to tilt the trailer for easier loading and unloading.
- 4.2m long – 1.2m wide – 2.6m high

### ALLOWS FOR CONFIDENTIALITY

- We understand that testing new and innovative products often requires an element of secrecy. Protecting a company's intellectual property is often essential to the success of a company. Drying Solutions provides such confidentiality.

### AFFORDABLE AND COST EFFECTIVE

- The ability to rent or buy a Rexmoi® Air Tray Dryer provides a low risk, cost effective option for companies to test and produce their value-added products.
- It is energy efficient with running costs as low as \$10-\$15 per 24 hours, depending on the unit model and energy charges.

### ADVANCED SOFTWARE – AUTOMATED, TEMPERATURE AND HUMIDITY CONTROL

- Temperature range of -5 to 70 degrees Celsius.
- Advanced software allows for complete and accurate control of the Rexmoi® Air Tray Drying unit.
- Monitoring and recording humidity, time and temperature provides customers with detailed information, allowing them to diagnose any issues and refine the drying process.
- Programmed to automatically adjust temperatures and humidity levels without stopping the unit.

### FOOD GRADE

- The Rexmoi® Air Tray Dryer's removable trays are made of stainless steel and comply with all food safety regulations. Filters are used to control and contain product particles in the chamber and an air sanitising system can be added.

### MACHINE SAFETY

- The Rexmoi® Air Tray Dryer is a safer method of heating volatile products, as there are no exposed electric elements or gas fires.



"We believe this new way of processing and preparing of products has a great future. This technology enhances the product value and goodness."

### ADDITIONAL SERVICES WE PROVIDE.

#### DRYER MAINTENANCE AND SERVICING SUPPORT

We provide ongoing maintenance services, in order to maximise the efficiency and effectiveness of the dryers.

#### ONGOING ADVANCEMENTS AND CUSTOMISATION

We understand that every client is different; so we can provide customised drying solutions to meet our client's needs.

#### PARTNERSHIPS WITH EXPERT FOOD TECHNOLOGISTS

We provide customers with experienced food technologists to accelerate the research and development phase, and get value-added products to the market faster.

#### NETWORK OF NEW ZEALAND RESEARCH AND INNOVATION INSTITUTIONS

Our network of research and innovation institutions is a valuable tool; providing clients with the support and knowledge required to develop new and innovative products.

If you have any questions or would like further information, feel free to contact us.

#### Location

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# REXMOI® AIR TRAY DRYING USES REFRIGERATION TECHNOLOGY FOR HEATING, COOLING AND HUMIDITY CONTROL.



The Rexmoi® Air Tray Dryer is a multipurpose machine with the ability to:

- Remove moisture from products or the atmosphere
- Control the moisture content in products
- Cool products quickly
- Heat and cure products at various temperatures
- Cook at low temperatures

At Drying Solutions, we understand that being part of the innovation and development space can be an exciting yet cautious path.

The Rexmoi® Air Tray Dryer is a portable drying option, allowing businesses to dry and test their products at their own site. Drying Solution's offer purchase and hire options; making drying technology accessible and affordable to the wider business community.

Drying Solutions is a New Zealand owned and operated business that was established in 1995. We have put thousands of hours into the development and refinement of the Rexmoi® Air Tray Dryer and as the business has evolved, we have created a wide range of complimentary products and services that can be used in association with the dryer.

Founder Robert Barnes, an electrician who moved into the refrigeration and air-conditioning industry, has dedicated over 20 years in perfecting the Rexmoi® Air Tray Dryer and is pleased to be offering New Zealand businesses the most versatile industrial drying solution available today.

## THE REXMOI® AIR TRAY DRYER HAS BEEN USED IN MULTIPLE INDUSTRIES TO CREATE VALUE-ADDED PRODUCTS.

### KIWIFRUIT INDUSTRY

The kiwifruit industry had a problem with labelling fruit when they were removed from cool storage. Condensation was forming on the fruit and the labels would not stick. By controlling the atmosphere in the grading and labelling area, we could keep the fruit dry and perfect for labelling.

### NUT INDUSTRY

We have successfully dried various nuts – chestnuts, walnuts, macadamia nuts to name a few. All of which benefited from low temperature drying resulting in a better retention of taste and nutrients and an increased shelf life.

### BERRIES

Drying berries is an effective way of preservation, eliminating the need for refrigeration.

### MEAT INDUSTRY

Dried meat is an exciting market sector, tray drying is a common processing technique that adds great value to a range of meat products.

### PET FOOD

Pet food is a huge industry with ongoing product innovation. To keep up and remain competitive in this space companies are providing value-added products to pet owners.

### LOW TEMPERATURE COOKING

This is used when a product needs moisture removed, to set the product and enhance its shelf life. This is important as high temperatures would burn or destroy the product and its valuable nutrients.

### CURING PRODUCTS

Controlling the temperature and atmosphere for the preservation of products. Food, timber, leather and a variety of other materials can be dried in the Rexmoi® Air Tray Dryer.

## DRYER DESCRIPTION AND PERFORMANCE.

### HOW IT WORKS

The wet product is laid out on trays and dried in batches in a closed housing. The dryer uses an efficient refrigeration system to create warm air, which is circulated over the trays. The moisture is then removed in the form of water.

### THE CONSTRUCTION

The dryer has a galvanised steel base and frame, covered with a Urethane Insulated Panel. The panel has an outer skin of powder-coated galvanised steel. The internal surface consists of colour steel or stainless-steel which meets food grade requirements. The stainless-steel trays are mounted on trolleys to enable the product to be easily moved in and out of the drying chamber via the Insulated Panel door. A lifting platform allows for easy loading and unloading of the trays into the dryer.

The stainless-steel trays and aluminium trolleys can be customised to meet specific dimensions and can be built of a specific material, in order to suit the product being dried.

### INSTALLATION

The dryer is built on a solid steel base and can be easily moved by a forklift if necessary. It is designed to be used inside a building. At times during the drying cycle, warm or cool air will be released from the refrigeration coils mounted outside the housing. It is therefore important for the dryer to be located within a space where the airflow will not be impeded or cause any problems.

The drain line needs to be run to a gully trap in the building's sewage system.

The dryer needs to be connected to the building's power supply, and it is recommended that this be via a three phase, neutral, earth plug and socket, to allow for easy disconnection. The dryer draws about 10 to 40 amps per phase, however the load will vary depending on the dryer's size.

### THE DRYING PROCESS

The dryer operates in a closed cycle, with air being continuously circulated within the housing. No air is introduced from the outside or is discharged, eliminating the discharge of odours or external contamination of the dried product.

Each dryer can be built to suit a particular application. The biggest dryer developed to date can hold over 500kg or 1.9 cubic metres of wet product; and has the capacity to remove up to 60kg of water per hour. Drying time depends on how easily the moisture is removed and the desired water content of the product.

The drying rate depends on the surface area and texture of the product, the thickness of individual pieces, how easily moisture travels from the centre of the pieces to the outer surface and how densely the pieces are packed onto the trays. The rate of moisture removal is at its highest at the beginning of the drying process when the product is very wet, and is at its lowest near the end of process.

### CONTROLLING THE DRYER

The dryer is fitted with a PLC (Programmable Logic Controller) providing automatic control over all stages of the drying process. The PLC is fitted with a touch screen interface that displays data throughout the drying process and allows control settings to be altered by the operator.

The dryer can operate at a wide range of temperatures – between -5 to 70 degrees Celsius. It has the added benefit of being able to easily change the temperature during the drying process, allowing for optimum drying conditions for the product. This gives good control over product quality, appearance and bacterial growth.

The chosen set of conditions for a product is called the 'Drying Recipe' and is programmed into the PLC. The 'Drying Recipe' will be based on a set of initial conditions for the product. It is important that these conditions are adhered to, and if they change over time, the recipe may need to be adjusted.

Once loaded, the dryer operates automatically, without the need for any operator input.

Data can be logged by the PLC throughout the drying process. A SCADA system can be added to the PLC to allow for the data to be downloaded for use in product-quality verification. The SCADA system also enables the dryer to be remotely monitored for correct operation and to diagnose the cause of any problems that may arise.

