

## Dry Box with Less Than $-70^{\circ}\text{C}$ Dew Point in $50\text{m}^3$ For Less Than 1 kW

Less Than  $-70^{\circ}\text{C}$  Dew Point Guaranteed!

Low Cost of Ownership:  $50\text{m}^3$  dry atmosphere for less than 1 kW!

Modular Production Capabilities!

Dryroom Integration with Existing Production Lines!

Recent technologies in the lithium-ion battery production process has allowed battery manufacturers the ability to meet today's growing demands in lowering operating cost and improving quality in lithium-ion batteries. Unlike dry rooms, where a number of battery manufacturers currently produce batteries, MBRAUN gloveboxes and dry box enclosures are specifically designed as a flexible controlled manufacturing platform that can be configured to meet real time production demands.

The challenges lithium-ion battery manufacturer's face are the ability to produce higher quality batteries in a safe, clean, efficient and flexi-

ble working environment. Manufacturers need to continually meet growing product demands and compete in today's globally competitive marketplace. Incorporating MBRAUN enclosures in the production process better helps manufacturers meet the challenges by lowering overall operation costs and allowing greater flexibility in meeting the changing demands of lithium-ion battery manufacturing. MBRAUN enclosures achieve greater control of the atmosphere compared to dry rooms where the environment is most often determined by a number of outside influencing factors like regional climate change and the number of operators working inside the dry room.

Current and future generations of lithium-ion battery manufacturers will look towards lowering overall production costs associated with current operational procedures and increasing quality control while meeting the rapid changes in battery production demands. To solve the challenges manufacturers face with lowering production cost and improving quality, companies need to adopt a new line of manufacturing. Incorporating stand alone MBRAUN enclosures and/or integrating enclosures with existing dry rooms for lithium-ion battery production lines is the best way to meet today's growing demand.



ISO 9001:2000 certified

**MBRAUN Enclosure System with Gas Purification Systems and Optional Equipment**

# Dry Box with Less Than -70°C Dew Point in 50m<sup>3</sup> For Less Than 1 kW

## About MBRAUN

MBRAUN designs and manufactures the most advanced, highest quality inert atmosphere gloveboxes, gas purifiers, solvent purification systems, thin film deposition equipment, evaporators and vacuum chambers available on the

market today. Our world wide presence, experienced engineering, sales, and service departments make MBRAUN the best choice for all of your application needs. We can develop, prototype and manufacture even the most complex products held within your industry's rigorous quality standards.

Safe Handling



Glovebox System vs. Dry Room in Lithium Battery Manufacturing	
MBRAUN Glovebox System	Dry Room
Modular in design allows greater flexibility	Difficult to extend, in most cases new dry rooms need to be built
More convenient to operate and safer than dry rooms	Unhealthy working conditions
Glovebox atmosphere not dependant on regional climate	Dependant on regional climate. Extra financial and technical effort to maintain atmosphere
No contamination resulting from operators due to usage of vacuum antechambers	Greater Contamination risk due to operators ( <b>one worker equals 110g moisture per hour</b> )
Continuously same atmosphere over a long period of time	Atmosphere varies in dependance of number of operators working inside
Less than -70°C dew point guaranteed and documented	Normally dew point around -40°C depending on regional climated and people working in the dry room
Lower energy consumption: e.g. 50m <sup>3</sup> at -70°C needs only 1 kW	10 to 50 times higher energy consumption



Automation



Transport Systems

**MBRAUN World Wide**  
Over 30 Years Experience

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