



Climate by Design
INTERNATIONAL

ARID-Dry®

**Corrosion Protection for Long Term
Layup of Power Plant**

Mobile Desiccant Dehumidifiers

Temperature and Humidity Control Equipment

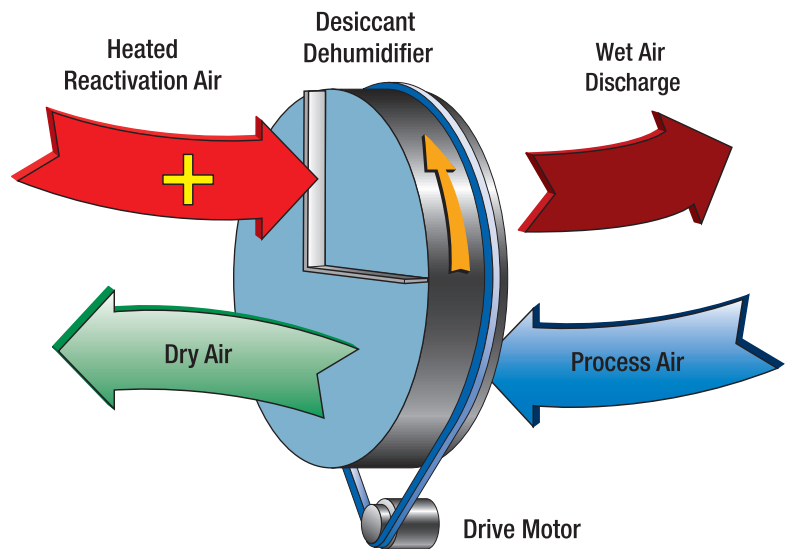
INTRODUCING CDI

Climate by Design International (CDI) is a flexible engineering and manufacturing company building large-capacity desiccant dehumidification systems for a wide variety of industrial and commercial applications.

The ARID-Dry® mobile product is comprised of large capacity desiccant dehumidifiers to remove ambient water vapor from air. Large-capacity desiccant dehumidification units are used in a variety of industries, including water damage and remediation, document drying, industrial surface preparation for coating, mold and fungus prevention, long-term lay-up of industrial equipment, and industrial condensation prevention. We have the capability to incorporate many additions to provide complete solutions for the temporary humidity control market.

Special attention is paid to construction details to provide a resilient unit capable of meeting the demands of the rental and temporary humidity control market. The units incorporate state-of-the-art features to maintain peak efficiency. Our wide variety of sizes can be applied from the smallest residential project to the largest commercial industrial project.

Our goal is to maintain the highest ethical standards and professionalism in order to best satisfy our customers.



Desiccant Dehumidification

A simple solution to an old problem. Solid desiccant rotor absorbs moisture from process air. Heat is used to “reactivate” the desiccant.

Why Use ARID-Dry® Desiccant Technology?

- Very dry air can be achieved.
- **Better thermodynamic efficiency:** Achieved because no change of phase (condensation) is necessary.
- **Simple construction:** Basic dehumidifier includes only two fans, a heater and the desiccant rotor assembly.
- **Simple maintenance:** Simply replace filters regularly and performance is assured. A yearly inspection by our service technicians is recommended to head off unscheduled outages.
- **Better Construction:** Double-wall insulated casing suitable for indoor or outdoor mounting.
- **Modern Controls:** CDI includes standard intelligent microprocessor controllers with “Fail-Capable” mode.

Better Humidity Control Through ARID-Dry® Design

- **More Sizes:** Units range from 600 to 27,500 CFM.
- **More Flexibility:** Total system integration is available including heating, cooling, enthalpy recovery, and special filtration. Even custom configurations are available to meet unique project requirements.
- **More Support:** Application engineering assistance, start-up and owner training, and preventative maintenance programs offered by CDI.

MS SERIES CAPACITY DATA

Series	Max Air Volume*	Electric Reactivation 220/1/60	FLA Load 460/3/60	Gas Reactivation 220/1/60	FLA Load 460/3/60	CFH Gas Max Usage Natural	Gallon/HR Max Usage LP
MS-600	600	24	8.2	NA	NA	NA	NA
MS-2400/2000	2,400	NA	51	30	NA	120	1.8
MS-5000/4000	5,000	NA	112	47	NA	359	3.9
MS-6000/5000	6,000	NA	138	NA	13	400	4.4
MS-12000/10000	12,000	NA	292	NA	42	718	7.6
MS-17500/15000	17,500	NA	335	NA	44	1,200	12.7

Series	Max Air Volume*	Moisture Removal Lbs per hr. 80°/60% RH	Moisture Removal Gals per day 80°/60% RH	Moisture Removal Lbs per hr. 55°/80% RH	Moisture Removal Gals per day 55°/80% RH	Moisture Removal Lbs per hr. 40°/80% RH	Moisture Removal Gals per day 40°/80% RH
MS-600	600	8	23	6	18	5	16
MS-2400/2000	2,400	50	143	42	120	25	71
MS-5000/4000	5,000	102	295	87	251	56	161
MS-6000/5000	6,000	136	392	115	331	75	216
MS-12000/10000	12,000	295	851	253	729	169	486
MS-17500/15000	17,500	424	1,221	355	1,022	242	697

Moisture removal is nominal only for reference; Actual Performance will be based on specified conditions. *Maximum volume rated at 0" ESP.

Typical component options include:

- Unit-Mounted Filters, Options Include:
 - 10% Permanent Washable 2" Thick Industrial
 - 30% 2" (standard) Pleated Throw Away
- G-90 16-Gauge Galvanized Double-Wall Construction with Insulation
- Cooling Coil and Heating Coil Options
- Direct-Fired Natural-Gas, Electric or Propane Reactivation Systems
- Skid with Fork Tube or Trailer Mounted
- Full Protective Enclosure with Structural Stacking and Lifting Cage
- Integrated Control System with 10-Point Operational Function Display
- Shipping Covers for All Inlets and Outlets
- Packaged Refrigeration System Options
- Packaged Generator System Options



MS-17500/15000 skid-mounted dehumidifier.

Corrosion protection for power plant long term layup CDI, ARID-Dry Mobile Dehumidifiers

The use of dehumidified air systems to control corrosion in metals consists of removing atmospheric water vapor from the air to lower the ambient (Air) vapor pressure or % RH below the dew-point temperature of the surface. Maintaining an ambient vapor pressure lower than the corresponding surface vapor pressure will prevent moisture from collecting on the surface.

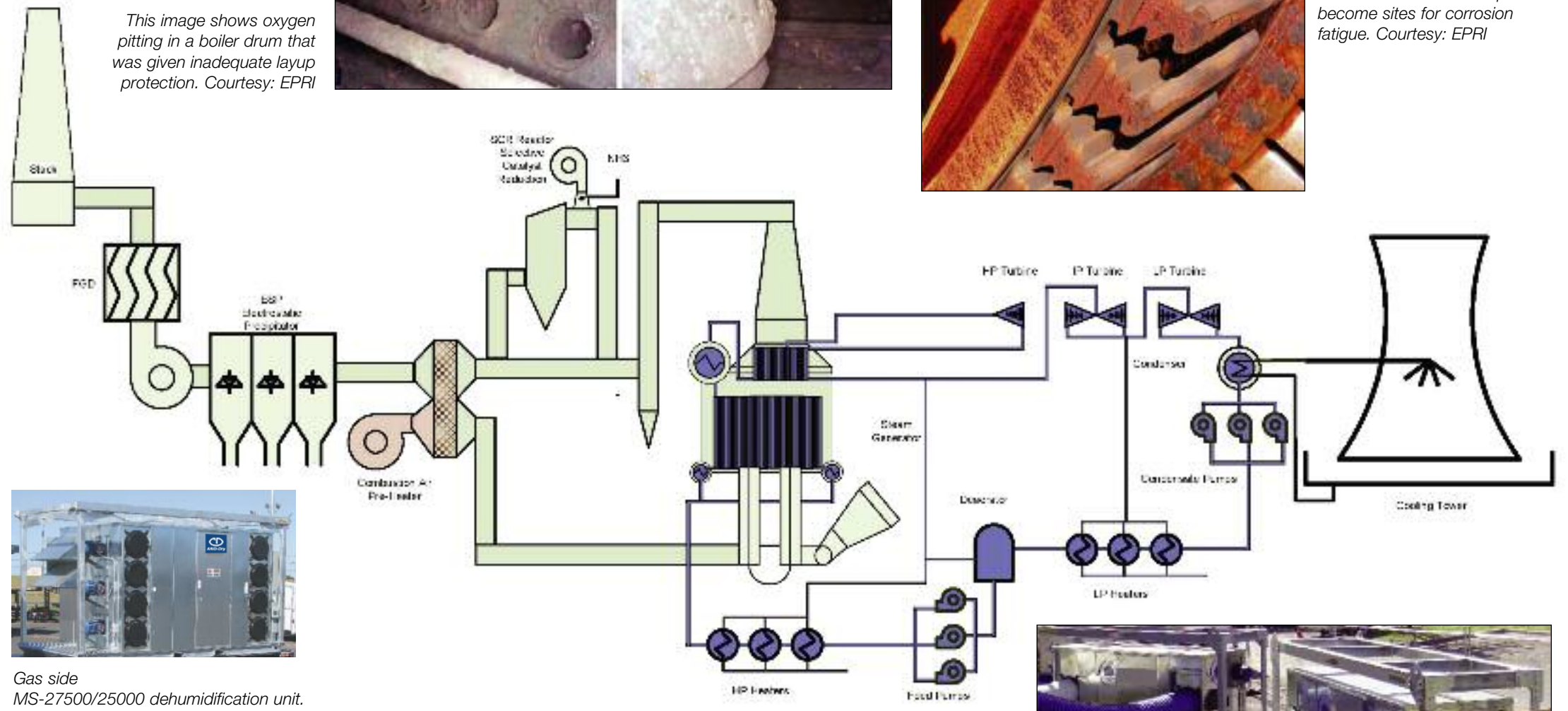
Industrial Condensation Prevention

Metal Surfaces can oxidize when ambient dew point levels exceed the surface temperature. Microscopic moisture particles will collect on surfaces as the metal cools the ambient boundary layer in close contact with the cool metal. As more water molecules collect, visible moisture appears. This moisture can create rapid oxidation or flash rust. Other materials present from the combustion processes in the gas side of boilers and assorted auxiliaries can also interact with the moisture to form acids which can further accelerate the degradation of surfaces. Temporary or permanent desiccant dehumidifiers can eliminate the condensation.

Utility Boiler Long-Term Storage

If a utility or industrial boiler or generator is idled for long periods of time, corrosion can result. Corrosion is caused when elevated ambient dewpoint air contacts the metal surfaces. Temporary or permanent desiccant dehumidifiers can reduce the ambient dewpoint, which prevents corrosion. Large boiler/generators and ancillary components can be protected for long periods by providing dry air blankets to protect equipment without the expense or dangers of a nitrogen blanket.

Climate by Design International (CDI), **ARID-Dry** mobile desiccant dehumidifiers provide temperature and humidity control for power plant long term layup and industrial condensation prevention.



This image shows oxygen pitting in a boiler drum that was given inadequate layup protection. Courtesy: EPRI



Deposits that contain chloride aggressively pit the turbine when it is allowed to sit in moist conditions. These pits become sites for corrosion fatigue. Courtesy: EPRI



Gas side MS-27500/25000 dehumidification unit.



Power plant turbine unit. Courtesy: TVA and EPRI.



Skid-mounted MS-13500/12000.



Wet side, MS-6000/5000 pulls moisture from ambient air.

CDI builds the largest- capacity mobile dehumidifier available. Systems utilize natural gas, propane, or electric reactivation.

ARID-Dry is more thermodynamically efficient because there's no change-of-phase necessary. It's simple design makes it highly reliable, while our superior construction makes the system dependable day-in and day-out in the most demanding environments. Our intelligent microprocessor even makes using ARID-Dry equipment easy to monitor!

FEATURES AND BENEFITS

- The standard is a microprocessor controller for reactivation rate and safeguard functions, and also for heating and cooling functions if these options are present. Terminal-strip connection points are included for customer use for alarming, monitoring, and for communication with a building management system.
- Each unit is ETL Listed and approved. Every item shipped carries a full ETL approval including all options in compliance with the current mechanical code. We also have the ETL-C listing for Canadian projects. On European projects, we can provide country-specific C-E approvals.

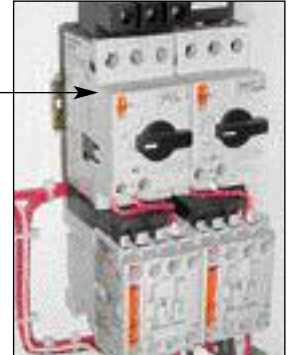


- The microprocessor reactivation controller maintains a constant burner-output temperature, so burning the desiccant rotor is unlike other manufactures. In addition, modulating via a reset schedule minimizes energy use. Full-rated performance is available in cool weather because it is not necessary to limit the firing rate as other manufacturers do.
- Our reactivation burner flame safeguard system is an industrial Honeywell R7895A instead of a commercial-or residential style "ignition module." The standard gas train on gas-fired units is an ANSI type, and includes inlet regulator, automatic main and pilot valves, an electronic modulating valve, in addition to safety manual valves.



- Reactivation temperature sensors are 500°F rated Platinum thermistors.

- The units use combination circuit breaker/overload/ starters for fan motors. This eliminates the need for spare power fuses, and saves the customer downtime because, if an upset occurs, a simple reset will bring the unit back online.



- Electric heater banks with individual circuit breaker protection.
- Wiring to industrial terminal strips makes for easier connection and troubleshooting.



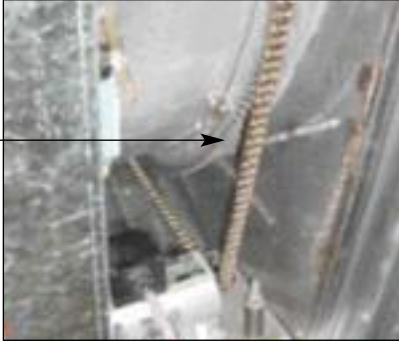
- A remote humidistat with cord.



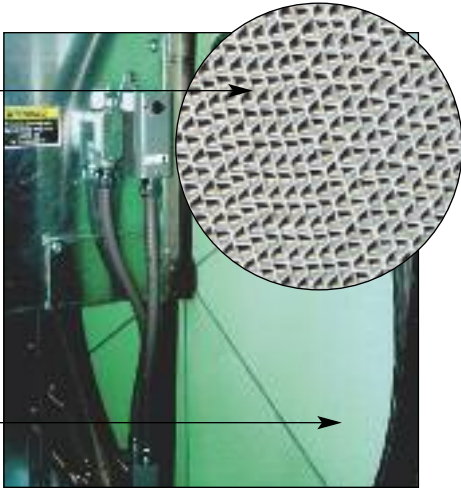
- Graphic Function Display annunciation panel to provide indication of operation status.



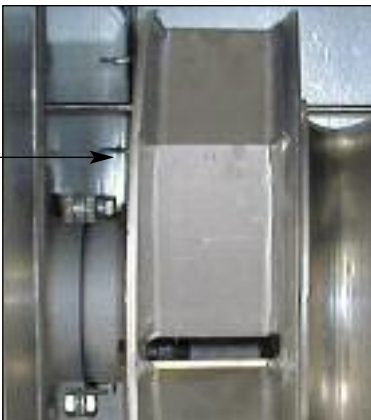
- A full-perimeter sprocket with a #40 molly chain drives our desiccant rotor. This is more durable than any other system on the market.



- Stabilized silica gel is permanently bonded to a low specific-heat substrate for long-lasting dehumidification performance at maximum efficiency. The desiccant rotor rim and cassette are Stainless Steel for durability and strength.



- Our desiccant rotor seals are dual-contact, Viton extruded seals, designed to last for the life of the unit. This is the most durable seal in the industry.
- Standard Blowers are backward inclined, nonoverloading rated for total static pressure. Wherever possible, blowers are directly coupled to fans to eliminate belts and external bearings.



- Optional, high static pressure control damper.



- Protective guard over blower discharge area.



- Removable shipping covers to protect unit in shipment.
- The standard unit construction is G-90 galvanized Steel, double-wall, and insulated. It is very rugged, and includes airtight, gasketed access doors for access to components.



- Multiple components and configurations provide a versatile unit to meet every application requirement.

ARID-Dry MOBILE PRODUCTS

CDI is the largest mobile dehumidifier systems manufacturer in North America. Our equipment is offered by the largest heavy equipment renters in the United States.

Choose from an extensive line of dehumidifiers for jobs of all sizes, with lots of options and world-class support to make sure you're on the right track.

To prevent corrosion on power plant equipment, you need the best.
You need ARID-Dry.



Advanced filtration system enclosed trailer - 18,000 SCFM



Caster-Mounted HEPA Filter.



Various size SCFM skid mounted and caster units



Skid-Mounted MS-6000/5000



Caster-Mounted MS-2400/2000.