



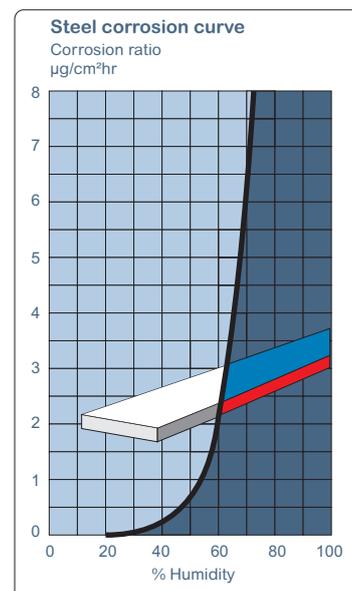
## Conservation of thermal power stations

During stoppages, thermal power stations have to tackle very severe corrosion risks. If appropriate prevention measures are not taken, corrosion can cause a lot of damage to many different system components, and can result in major disruptions to the restart.

The magnitude of this problem means huge efforts have been made to find adequate solutions. Comparisons made between the methods in existence today have shown the dry air method to be the most effective.

### Dry air method.

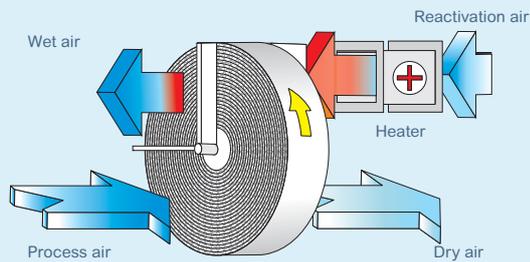
The dry air method has superseded previous methods, because it is simpler, cheaper and quicker.





## Conservation of thermal power stations

### Drying rotor operating principles



A practical example is the manufacture of FISAIR desiccant dehumidifier model DFRC-0651-E with a drying capacity of 36 kg/hr, powering a flow of 5,000 m<sup>3</sup>/hr of dry air. This customized design boosted the pressure available in the dry air circuit of the dehumidifier in order to remove humidity from the most inaccessible sections of piping.



The following comments should be taken into account when employing this conservation method:

### Turbines

The only necessity here is the prevention of condensation, so maintaining relative humidity at 50% is enough. It works in open or closed (recirculating all the air) systems.

### Boilers

#### Water/vapour circuit

Relative humidity must be kept at 30%. Sizing depends on variations in absolute humidity with respect to the exterior temperature difference. It works in an open system (all exterior air). Pumping air to the areas most sensitive to humidity. Air conditions must be measured in the outlets.

#### Gas circuit

Corrosion is the result of the presence of sulphuric acid. This is less aggressive when its concentration increases: and the concentration increases when the environment is dehumidified. According to the graphs, the relative humidity required is 5%. We have however learned from experience that 20% is enough.

### Results

When the dry air method is used, excellent results are achieved:

- It is easy to check whether there are corrosion risks, by simply evaluating the humidity in the air outlets.
- It enables access to the parts conserved, while they are being protected.
- Less energy is required than in the heating method, and no dangerous and expensive chemical compounds are required, as for humid conservation.

All the above-mentioned points of a technical and economic nature mean **the dry air conservation method is preferable to all other possible methods.**