

BIO GAS DEHUMIDIFIER

The Bio gas contains moisture which causes harm to the pipelines and system. As it makes acidic solution because it contains H₂S which corrodes the material. We have different solutions for removing moisture from the wet Bio Gas either by refrigeration system or by Desiccant dehumidification for achieving low point.

The wet bio gas is passed through a pre-cooler/post heater where inlet gas temperature is lowered by heat exchanged by outlet cooled gas. This reduces the load on refrigeration compressor and also increases the temperature of outlet gas. After precooling the gas enters the evaporator where gas is cooled down to 15°C by chilled water. At this temperature the moisture is condensed, separated in moisture separator and drained out through automatic drain valve. After this dry gas at 15°C goes through the pre-cooler/post heater and exchanges heat with incoming wet gas.

REFRIGERATED TYPE DEHUMIDIFIER



CHILLING UNIT



HEAT EXCHANGING UNIT

In this unit refrigerant is compressed in scroll compressor and is cooled in condenser and is passed through expansion valve. Due to expansion the refrigerant gas temperature is lowered and heat is exchanged with water in PHE. The chilled water is circulated by primary pump and is collected in water tank. The chilled water temperature is maintained at 8°C. Once the temperature is achieved hot gas bypass valve is opened and if the temperature does not come back to 8°C after 2 min the compressor is switched off automatically. It will restart after two minutes once the temperature of chilled water comes back to 8.2°C. Two similar systems have been provided independently.

DESSICANT TYPE DEHUMIDIFIER



The compressed bio gas which is at elevated pressure is passed through pre filter where dust particles are trapped upto 5 micron. Now clean bio gas is sent to twin tower dessicants (molecular sieves) based system where moisture is removed. Where one tower is in process second tower goes into regeneration by de-pressurizing. After a pre-set timing the changeover takes place and second tower goes in process and first in regeneration. This cycle is repeated automatically. Now the dry bio gas is now passed through an after filter if some dust particles is still present in bio gas can be removed through this filter which is of 01 micron. Dew point of bio gas will be (-) 40°C.