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NITROGEN ENGINEERS
AIR/GAS DRYERS

INTRODUCTION

Compressed Air/Gas Dryers are mainly used in industries for various applications in pneumatic tools, pneumatic instruments, pneumatic machines and in a variety of production processes. The consequences of using wet air are rust and scale deposits in steel pipes, increased resistance in flow, malfunctioning of process control instruments, corrosion and damage to electromagnetic valves and pneumatic system, peeling and blistering effect on spray painted surface etc. Thus it will affect the quality of product and lead to excessive maintenance cost.

We manufacture a wide range of Compressed Air Dryers Machine, which are great in demand in domestic and international market.

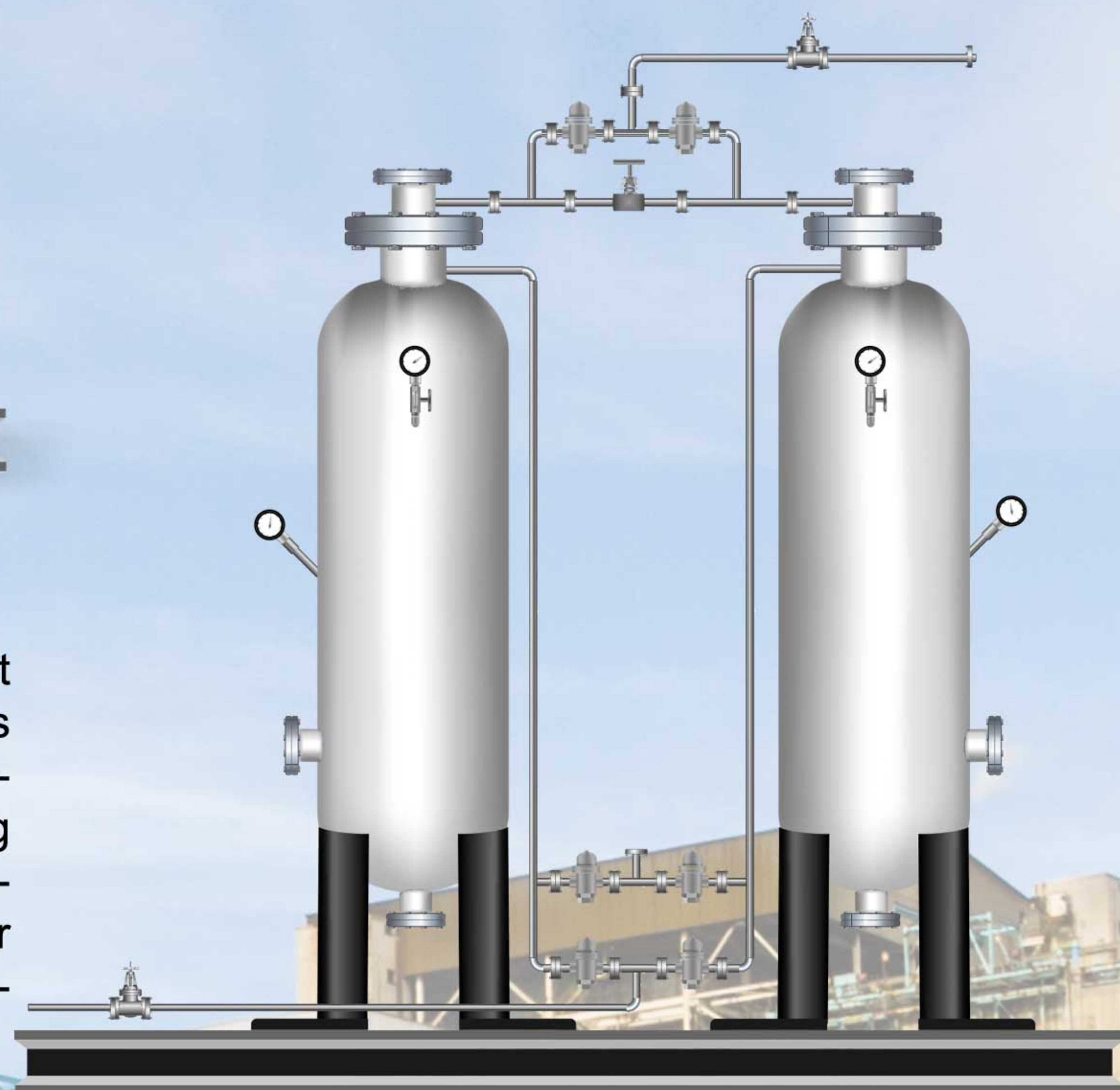
HEATLESS DRYER



Our heatless compressed air dryer is the simplest form of gas or air dryer for achieving a dew point of -40°C or better for compressed air systems and other gas and air dryer applications. The operating cost of this dryer is also low as there is no heating elements involved in the process. Thus for (-40°C) dew point applications, we recommend our NE-HL MODEL of dryer.

HEATED TYPE DRYER

This type of air dryer are used for obtaining High Dew point of (-60°C) or (-80°C) of compressed air or gas. In this design, the desiccant is regenerated at higher temperature, along with small quantity of Dry air purge. The Drying unit has 2-vessels filled with Activated Alumina or Molecular sieves desiccant. One vessel remains in drying cycle for 4 hours, while other vessel is simultaneously in regeneration cycle.

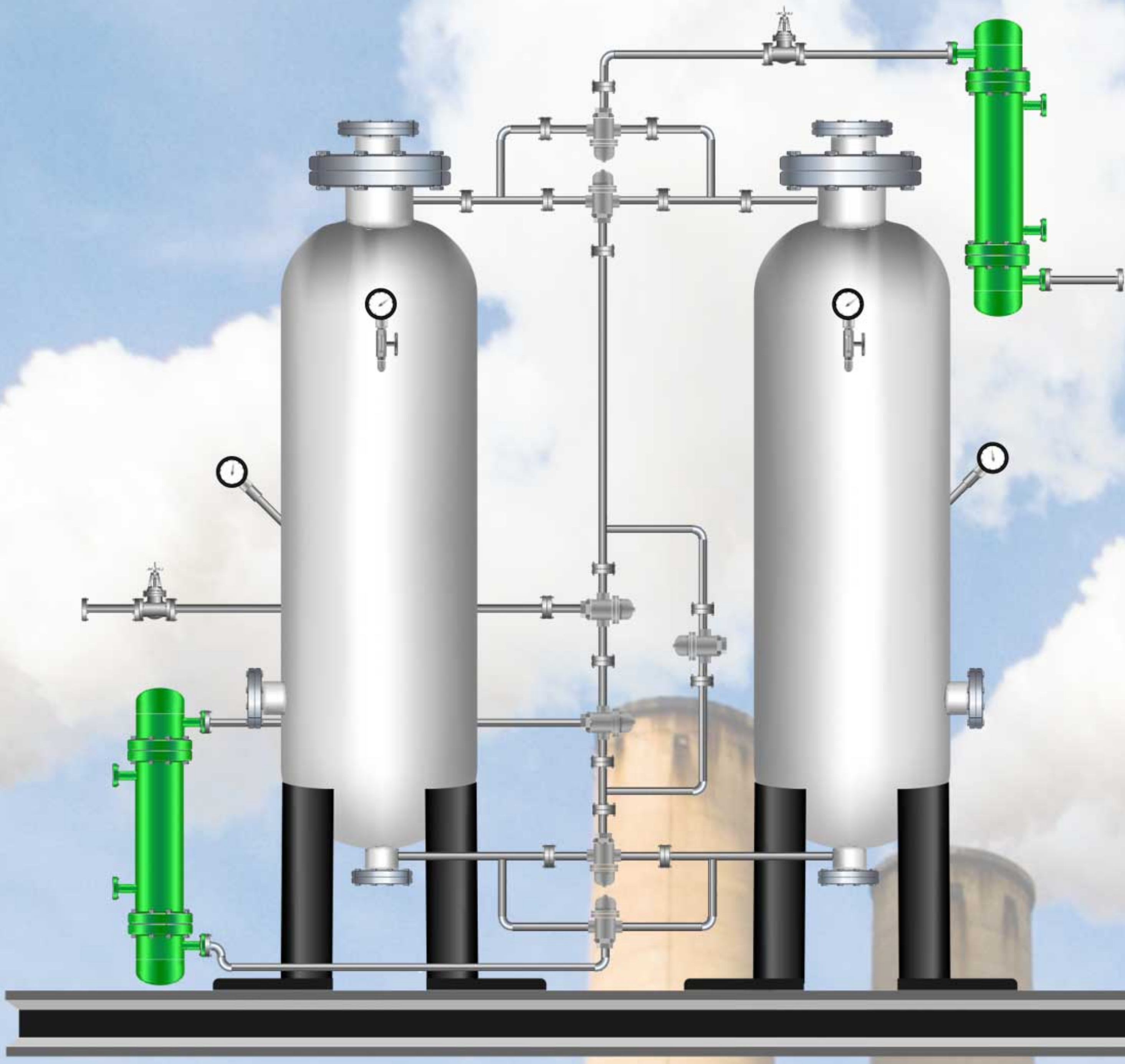


BLOWER REACTIVATED TYPE DRYER



In this type dryer Compressed air is directly fed to the inlet of air dryer, through cooler at 40°C (maximum) temperature. This air passed through Drying Tower and Air/Gas become dry and passed through the final outlet valve to system. Second tower is regenerated by passing Heated air continuously using blower & Heater at temp of 120°C to 140°C and resultant regenerating tower become hot and it start losing its moisture and this moisture is vented with air through regeneration valve to the atmosphere continuously. After Regenerated tower become dry a cooling cycle started and tower become cool before changeover and same process is repeated for first tower.

HOC /NO PURGE LOSS TYPE DRYER



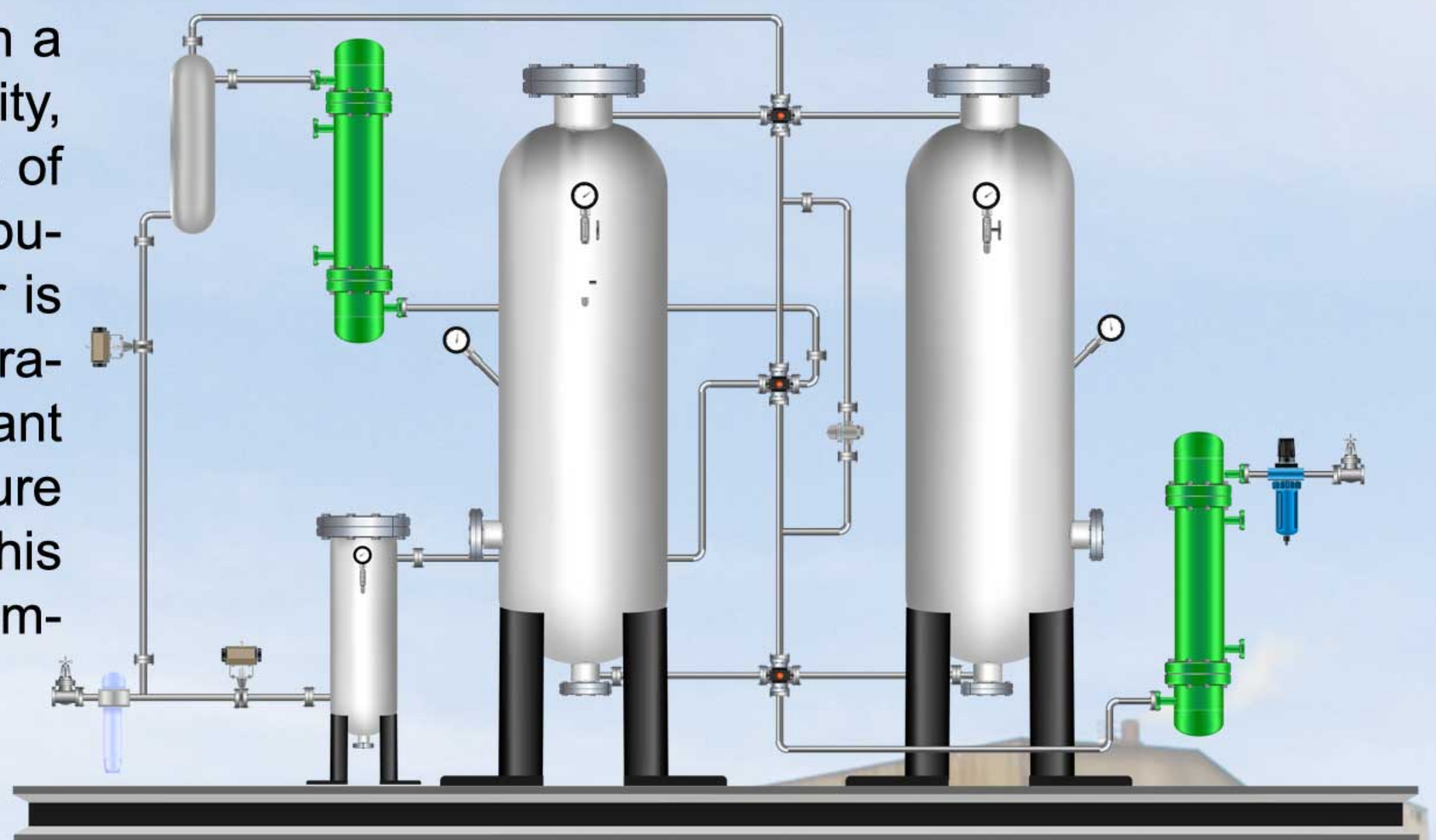
An air compressor generates heat. This heat is normally lost when the compressed air stream is cooled after the compressor. The quest of an HOC dryer is to utilize this waste heat for desiccant bed regeneration and thereby eliminate the use of an external heater. The basic idea is to directly flow all or part of the hot compressed air through the regenerating desiccant bed prior to cooling and adsorption.

There are some limitations to this approach. Most importantly, to avoid desiccant contamination, the HOC design must be paired with an oil free compressed air. Secondly heat loss must be minimized by removing the compressor's intercooler or after-cooler and locating the dryer immediately at the compressor discharge to prevent heatloss through system piping.

The simplest HOC design flows hot compressed air from the compressor outlet directly through the off stream desiccant bed and then through a cooler/separator. The air then flows through the on stream drying tower.

SPLIT FLOW NO PURGE LOSS TYPE DRYER

In this type of Dryer part of wet air is circulated through a heater thereby increasing its moisture carrying capacity, which is used for regeneration of wet tower. In this type of dryer incoming wet air is divided in two streams by distributor. 60% of wet air goes for drying while 40% of wet air is circulated through a heater thereby increasing its temperature which then takes out the moisture from the desiccant bed and then it is cooled in an after cooler where moisture is condensed and drained out in moisture separator. This air is sent back to the distributor where it mixed with incoming air and distributed again.

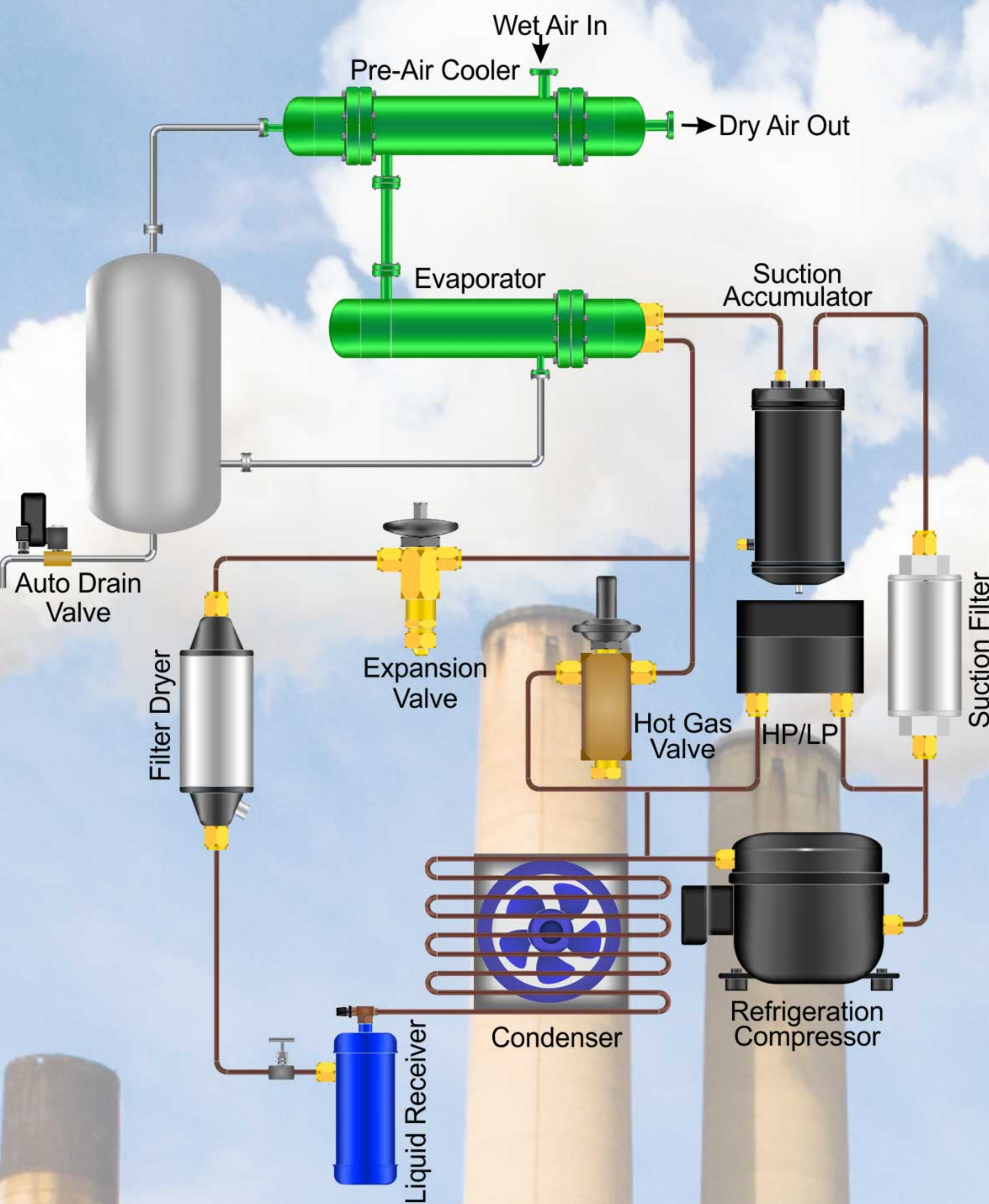


LOW PRESSURE DRYER



In this category Nitrogen Engineers provides specific design and systems, which are made as per the individual customers requirement, where dry air is required at low pressure, so in this system air is compressed by blower not by Air compressor

REFRIGERATED DRYER



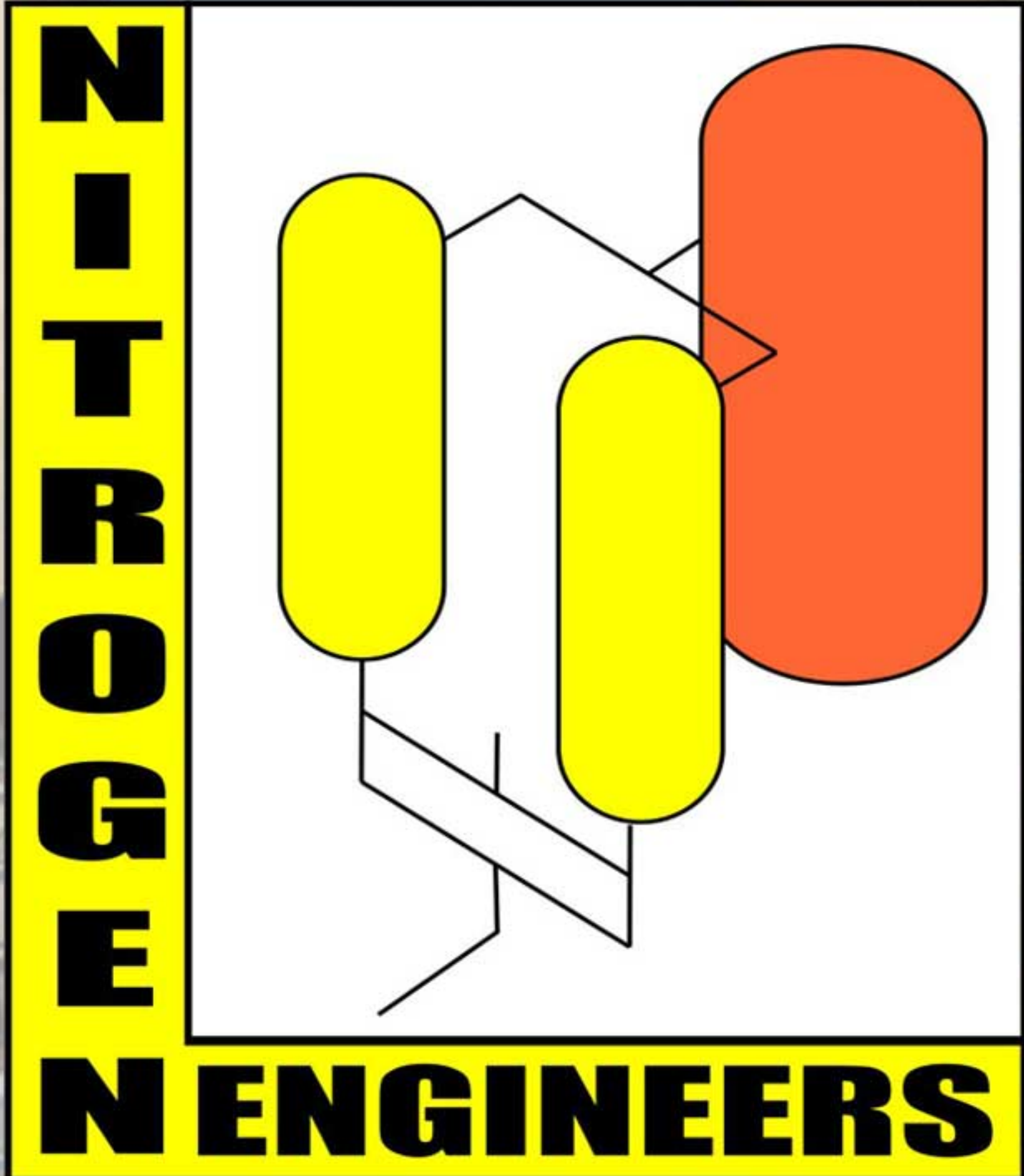
Our refrigerated type of air dryer is based on principle of the removal of moisture by cooling air to certain present temperature. As there is no concept of cooling of a body. Cooling refers to the removal of the heat from a body. The air to be dried is subjected to the pre cooler unit and evaporator unit. After this air get condensed and this moist air is passed through a moisture separator where moisture is drained out by centrifugal action of air

TEMPERATURE VS MOISTURE CONTENT CHART

TEMPERATURE °C	MOISTURE CONTENT gm/m ³	TEMPERATURE °C	MOISTURE CONTENT gm/m ³	TEMPERATURE °C	MOISTURE CONTENT gm/m ³
4	6.45	16	14.4	28	30.0
5	6.91	17	15.4	29	31.0
6	7.41	18	16.4	30	33.6
7	7.94	19	17.4	35	44.6
8	8.51	20	18.5	40	58.5
9	9.10	21	19.7	45	76.0
10	9.74	22	21.0	50	97.8
11	10.4	23	22.3	55	125
12	11.1	24	23.7	60	158
13	11.9	25	25.4	70	247
14	12.7	26	26.7	80	376
15	13.5	27	28.3	90	556

DEW POINT VS MOISTURE CONTENT CHART

Dew Point °C	Relative Humidity at 21°C %	PPM on weight basis	Dew Point °C	Relative Humidity at 21°C %	PPM on weight basis
-90	0.00037	0.057	-42	0.410	62.7
-88	0.00054	0.082	-40	0.516	78.9
-86	0.00075	0.11	-38	0.644	98.6
-84	0.00107	0.16	-36	0.804	122.9
-82	0.00155	0.24	-34	1.00	152
-80	0.00214	0.33	-32	1.24	189
-78	0.00300	0.46	-30	1.52	234
-76	0.00410	0.63	-28	1.88	287
-74	0.00559	0.86	-26	2.3	351
-72	0.00762	1.17	-24	2.81	430
-70	0.0104	1.58	-22	3.41	523
-68	0.0140	2.13	-20	4.13	633
-66	0.0187	2.84	-18	5.00	770
-64	0.0248	3.79	-16	6.03	925
-62	0.0328	5.01	-14	7.25	1110
-60	0.0430	6.59	-12	8.69	1335
-58	0.0565	8.63	-10	10.4	1596
-56	0.0735	11.3	-8	12.4	1900
-54	0.0948	14.5	-6	14.7	2260
-52	0.123	18.8	-4	17.5	2680
-50	0.157	24.1	-2	20.7	3170
-48	0.202	30.9	0	24.4	3640
-46	0.257	39.3	2	28.2	4330
-44	0.325	49.7	4	32.5	4990



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