COMPARISION TABLE

ONE YEAR POWER COST COMPARISION

Capacity (scfm)	Desiccant Dryer (kw/Year)	Refrigeration Dryer (kw/Year)
10 to 100	Min	Max
100	11919	5664
250	28799	5664
500	59520	18432
800	95359	21456
1000	119199	25296
1500	224828	26880

Example : Assume 500 scfm Dryer is running for 16hrs in a day and 300 days in a year.Therefore 300days x 16hrs = 4800 hrs

Dessicant Dryer DP Series	Refrigeration Dryer HX Series
Purge air (Dry air) required to regenerate the desiccant would be 50 scfm(approx). To produce 50 scfm of air,12.4 kw power would be required.	3.84 kw Refrigerant Compressor (approx) would be used in the Refrigeration dryer to cool the air and by removing the moisture.
4800 x 12.4 = 59570 kw / year	4800 x 3.84 = 18432 kw / year

ENERGY CONSERVATION BY USING LEVEL SENSING DRAIN VALVES

Assume the compressor capacity is 100scfm at working pressure of 7kg/cm 2(g).

Flow	: 168 m 3/hr [100 scfm]
Pressure	: 7 kg/cm 2(g)
Atmospheric Conditions:	
Relative humidity	: 100%
Temperature	: 40°c

Compressed air temperature at Filtering point	: 40°c
Specific volume at 40oC	: 19.55 m 3/kg
Inlet Moisture content	: 8.59 kg/hr
Moisture content at Pressure	: 1.07 kg/hr
Condensation	: 7.52 kg/hr
Timer Based Valve - EDV-HD	
Valve Kv	: 12
Discharge for 1 opening of 4 seconds	: 31.7 x 4 / 60 = 2.11 litres
Utilised drain period	: 7.5 /2.11 = 3.55 openings
Unused drain period (Valve at 2 minutes cycle)	: (30 - 3.55) = 26.45 openings
Discharge of air per ON time	: (70.56 x 4) / 3600 = 0.0784 m 3
Total air loss	: 26.45 x 0.0784 = 2.07 m 3/hr = 1.24 cfm = 0.412 hp 0.412 x 0.745 = 0.306 kw
Energy Saving per day	:0 .306x 24 = 7.3 kw
Energy saving per month	:7.3 x 24 = 175.2 kw

ENERGY CONSERVATION BETWEEN HX AND COLDBANK REFRIGERATION DRYER

Example : Considering 200 cfm Refrigeration dryer working 24 hrs/day, 360 days/year.

Particulars	HX	Coldbank
Power consumption of the dryer	0.9 kw / hr	0.9 kw / hr
Power consumption/year	7884	4730.4
Savings in power consumption/year	Nil	3153.6
Percentage power savings	Nil	40

The savings in COLD BANK is possible because

- In HX type refrigeration dryer the compressor is running continuously through out the year.
- In Cold bank type refrigeration dryer the compressor will cut off when the thermal mass attains the dew point temperature. Hence we are getting a savings of 40 %.