

MULTI COLUMN DISTILLATION :**Description:**

Multi Column Distillation Plant available from 80 ltrs. / hr. to 1500 ltrs. / hr. capacity produces 100% pure, pyrogen free, sterile distillate at unmatched low operational cost which confirms to Pharmacopoeia standards for WFI. All contact parts are made out of S.S. 316/316L and all the tubes are seamless.

Salient Features:

- Pure sterile, pyrogen free distilled water.
- Compact space saving design.
- High operational reliability.
- Meets GMP & FDA norms.
- Easy and silent operation.
- Excellent energy efficient.
- Easy to maintain and operate.
- Fully automatic operation*
- High degree of finish.
- Auto dumping of sub-standard distillate.*
- Special sanitary fittings.

Operation :

Multi-Stage distillation is use of a number of water evaporators arranged in series with stepwise reducing temperature and pressure conditions.

The system works on the principle of inter stage heat exchange and use intrinsic heat to supplement consumption need of heating energy and cooling water.

Due to surface film evaporation, a part of the feed water on the inside of the heat exchange tubes is converted to steam.

A controlled amount passes through the column which results in rapid cooling of boiler steam (external source) thus creating vapors at high velocity under pressure. Because of centrifugal force, the vapors rising through the entrained section are subjected to a 180° turn.

The pure vapor rises upward through a vertical section outside the heat exchanger (inner column) due to spiral motion. The unique centrifugal separation removes impurities such as pyrogens and endotoxins which flow out as they are blown down. The purified steam then moves towards upper end of the column. Condensing vapor from the previous stage is used as the heat source for the next. Since system needs heat to vaporize only 30% of the feed water, heating energy requirement is reduced by 70%.

Technical Details :**Distillate:**

Meets I.P. / B.P. Specifications.

Temperature : 95°C

Conductivity : Less than 1 Microsiemen /cm.



Feed Water :

De-ionised water with max. conductivity of 5 Microsiemens/cm.
 5 Microsiemens /cm.
 Pressure : 1 Kg/cm² higher than the infeed steam pressure.
 Temperature : ambient.

Cooling water :

Normal tap water
 Hardness: less than 90 PPM of CaCO₃.
 Temperature : ambient.

Steam :

Saturated, dry free from oil and other impurities.
 Pressure : minimum 3 Kg/cm²

Electricals :

Main supply : A. C. 415V, 3 phase, 50 cycles. Max. load – 5 KW.

Scope of Supply :

- Multi stage “Grundfos” make feed pump made out of S.S. 316 (Max. pressure : 10 Kg. /Cm²).
- Stainless steel centrifugal pump for cooling water.
- S.S.316 surge tank with float valve and low level controller.
- S.S. filter with S.S. housing for feed water.
- Pressure reducing calves and safety valve for higher capacity models.
- S.S. 316 dumping valve.

Consumption Data :

MCDP Model	Distilled water Output Ltr / hr.	Steam Consumption Kg/ hr.	D. M. Water Consumption (Feed Water) Ltr/hr	Cooling Water Consumption Ltr / hr	Dimension in mm
Ltrs / Columns	Steam Pressure Kg / cm ²	Steam Pressure Kg / cm ²	Steam Pressure Kg / cm ²	Steam Pressure Kg / cm ²	L W H
80/4	3 4 5 6 80 90 105 120	3 4 5 6 40 45 50 58	3 4 5 6 95 104 130 140	3 4 5 6 100 120 140 160	1000 600 1950
150/4	150 180 200 230	50 60 70 80	171 206 240 265	170 200 245 270	1880 870 3030
300/4	300 350 400 450	98 121 145 165	345 415 485 530	300 380 400 460	1980 975 3050
500/5	500 600 700 760	130 160 192 220	575 695 795 890	580 700 800 910	2630 975 3960
1000/5	1000 1200 1400 1600	240 300 355 455	1150 1390 1600 1955	1280 1570 1780 1970	3025 2500 3975

Note : Images Shown here are illustrative. As the design & manufacturing of Machines are subject to improvement, the product supplied will be as per our Techno-Commercial offer.