

Back Flow Preventer



Fig .1

Back Flow Preventer as seen in fig 1, is a safety device connected between ozone generator & ozone mixing device, e.g. Ventury, diffuser etc. As seen in figure 2, the pink line indicates the flow of ozone from ozone generator to ventury. The blue line indicates the reverse flow of water from water to drain connection, Back Flow Preventer is extra precaution for ozone generator. In case of malfunction of ventury, diffuser, NRV or any other device, BFP ensures full 100% protection of reverse water entering in ozone generator.

Principle of Operation

When ozone mixing pump is operated, the high velocity water flows through ventury creating negative suction called as ventury effect. Due to this negative suction ozone gas is sucked under negative pressure from ozone generator. Since ventury is a device where water (liquid) & ozone (gas) is directly coming in contact. There is a possibility water from ventury flows outward in gas line. The back Flow Preventer is so designed that if water comes out from the ventury it is diverted to drain and prevents 100% entry to ozone generator.

Function

There are two functions of Back Flow Preventer:-

1. Prevention of reverse flow of water into Ozone Generator.
2. Prevents excess built up of ozone in case of poor suction.

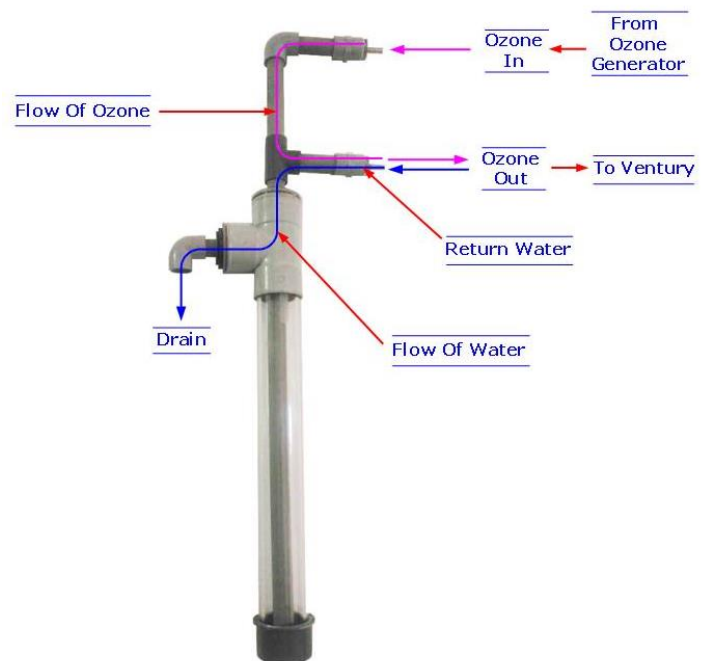


Fig. 2

1. Prevention of reverse flow of water:-

In this case water flows back from ventury and enters the Back Flow Preventer and flows to drain. This prevents water entering ozone generator. The Back Flow Preventer is so designed that in worst case scenario of any failure of part of BFP, the water flows out through drain & not to ozone generator.

2. Prevention of Excess Ozone Built up in ozone cell:-

In case of poor or lower suction in ventury the total generated ozone by the ozone generator is not sucked by ventury. In this case excess ozone flows through drain, preventing excess ozone built up in ozone cell.

General Arrangement

1. Air cooled with air as a cooling medium, systems having ozone generators of capacities 5.0g/hr to 15.0g/hr (fig.3).

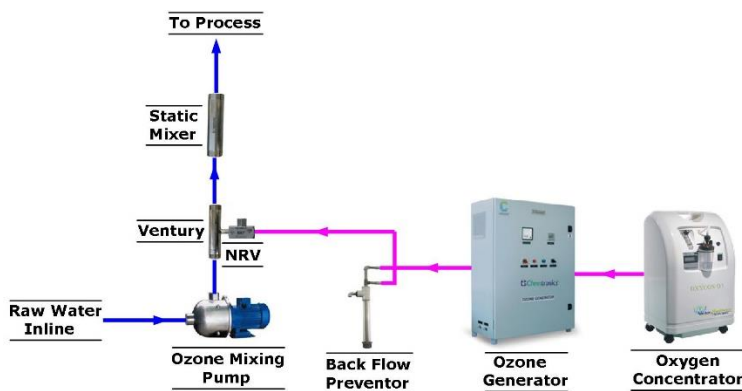


Fig.3 Air Cooled Ozone Generator

2. Water cooled with process water as a cooling water, system having ozone generators of capacities 10g/hr to 250g/hr (fig.4)

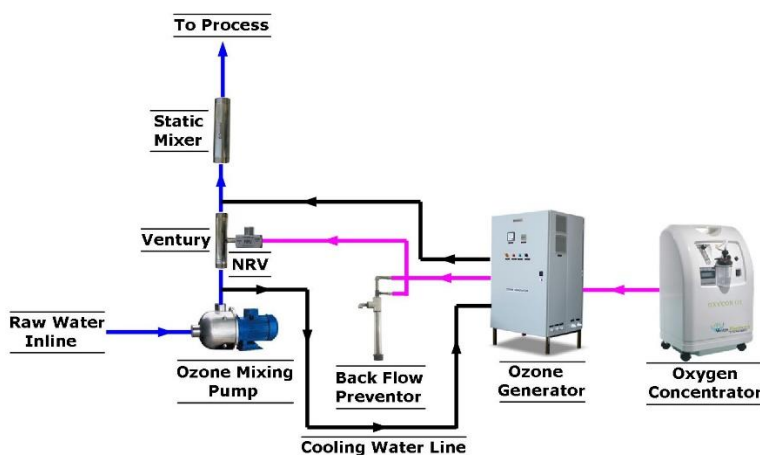


Fig.4 Water Cooled Ozone Generator

- Water cooled with isolated dedicated Cooling Tower for cooling water, having ozone generators of capacities 10g/hr to 250g/hr (fig.5). Generally this method of cooling is used for waste water ozonation.

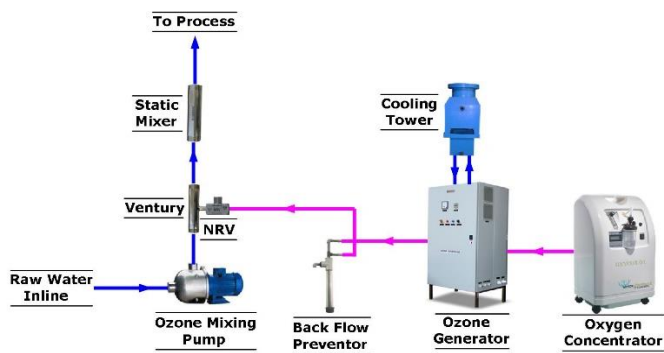


Fig.5 Water Cooled With Cooling Tower Ozone Generator