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FACTORS THAT WILL DRASTICALLY HAMPER THE AIR CURTAIN'S PERFORMANCE

Factors that hamper the Effectiveness of Air Curtains

Typically air curtains work well in many facilities such as production and industrial buildings, stores, transport terminals, car services, garages, markets, shopping complexes, drying houses etc. But proper installation of air curtains is necessary to ensure its proper working.

There are few other factors that can affect the efficient working of air curtains such as:

1. **Negative Pressure:** If the facility has exhaust fans or gravitational ventilators and no supply air or there is a difference between the exhaust and supply air (*i.e.* the

latter is less than the former) the negative pressure is created.

2. In these kinds of conditions the volume of air moving out from air curtains is also sucked in the facility along with the outside air and hence air curtains become ineffective.
3. **High Wind Velocity:** When the outside Wind Velocity is too high as in the case of storms, it will disrupt the flow pattern created by the air curtain on the doorway. So, whenever the outside wind velocity becomes greater than the velocity of the curtain, it will get disrupted.
4. **Horizontal Gap between Wall and Machine:** If the horizontal gap between the wall and the machine is too wide, the performance of air curtains will be drastically reduced. An air curtain should be installed close enough to the door so that there is no leakage from the sides of the door. The gap should be less than 50mm, for maximum effectiveness.
5. **Vertical Gap between the Nozzle and the top of the Door:** If the vertical gap between the nozzle and top of the opening will be wide, the effectiveness of the air curtain will be affected. Ideally, the gap should be less than 100 mm.machine.
6. **Sizing the Air Curtain:** The Air Curtain should always be equal to the Width of the Door, for it to perform optimally. If the air curtain is oversized, it will require more energy than usual and if the air curtain is undersized, it will prove insufficient to fully protect the opening it has

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been installed above. This will lead to an unnecessary increase in costs because of energy wastage.

- 7. Placement of Air Curtain:** When our primary objective is to discourage entry of mosquitoes and flies, the air curtain should be installed outside. When installed outside, it becomes 4 times more effective to stop flies, than the one which is installed inside.