

Pneumatic Rotary Turret Feeder

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Part orientation, sorting and feeding in highly inflammable chemical manufacturing situations can only use pneumatic powered automated systems instead of electro powered or hot steam powered automation systems, because electric charges and temperature increment can be a cause of ignition. A rotary turret feeder consists of two base mechanisms; having an oriented cylindrical bowl wall with a rotatable turret, which has specific shape cut at the edge. In the fabrication process, turret feeder was mounted within the bowl by an incline about 45 degrees from the horizontal axis. The incline of the feeder was determined, in order to increase the effect of the gravitational force on the caps. As a result of this, unstable caps re-enter to the sorting process. The torque generated by the pneumatic motor, which was mounted to the bowl with the same orientation, enables the rotary movements of the turret directly connected to the bowl. The rotary movement of the turret feeder is influenced for orienting bulk volumes of caps. The feeding turret includes specific shape carvings at its edge, which has inverse orientation geometry, needed as output orientation of the sorting item. Relevant orientation is the only stable orientation on the turret halls. Stable orientations of caps are taken out from the opening of the bowl wall by using an angular barrier. Barrier pushes the caps into the roughly finished angular surface. Due to the frictional force, pushed caps rotate into final desired orientation and slip through a guided fence as the output. As the results, low weighted side of the cap comes down as the output cap orientation and maximum feeding speed is 38 caps per minute. It can be acceptable for highly inflammable chemical manufacturing system's cap sorting situations as a safe, low cost, reliable and easily maintainable device.

Keywords: Pneumatic, Rotary oriented, Turret, Cap sorting