Buffer design and control

On a machine marshmallows are sealed in fixed batches. The marshmallows are transported from a 'barrel' to this machine on a conveyor belt. The arrival process is irregular, i.e., the inter-arrival times of the marshmallows vary (see data set 1 and data set 2; the time unit is 10^{-5} seconds).

However, the machine works continuously at constant speed. To prevent the machine from sealing too many 'empty positions', a vertical buffer is positioned between the conveyor belt and the sealing machine.

When the buffer is full, the conveyor belt will be stopped and start to move again as soon as 'enough' space becomes available. Clearly, stoppages lead to throughput loss. Also, their frequency should be limited (to avoid nervous behavior of the conveyor belt).

You are asked to give advice on the size of the buffer and the control of the conveyor belt.