Sorting Mechanism Using Hydraulic Actuators In Production Line

The main purpose is to design a sorting mechanism for a production line with three types of boxes

The production line capacity is 60 box per min (1 box per second) . then the traveling time from the point A and Point B must be less than 1 second

Gliding Wheels

40x150 cm

B

C

A

Pin Connection

40x150 cm

If we use a double acting piston from PneuWORKS MOB Series We can have variety of velocities (up to 1000mm/s) and stroke lengths (50mm to 1000mm)

C Max

85.9 degree

A

B

C

C min

300mm/s

Assuming the hydraulic actuator at point B is 0.2 m from the Pin Connection point A and has a stroke velocity of 300mm/s

Then we have

Converting 1.5 rad per second to degree per second we get 85.9

Now to find the angular displacement between point Cmin and Cmax

and applying Pythagoras theorem to approximately find the displacement between point C and Cmin

The displacement between point C and Cmin is approximately 1 meter which is helpful to determine the proper dimensions in further adjustments.

The actuator links

https://www.alibaba.com/product-detail/Double-Acting-Hydraulic-Cylinder-MOB-Series\_60476845858.html