

MODERN LINEAR

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Definition of Failure

The definition of failure is different for all machine components. Failure of linear systems can be based on many factors but is usually defined as a reduction in performance that affects the overall machine or application it is used in. In some cases this is a loss of position accuracy or an increase in noise. It could be a loss in accuracy that causes the failure of other machine components. It could also be that the only definition of failure is catastrophic... Kaboom! The moving carriage breaks or seizes, causing the machine to stop running.

Guide rollers can be used in linear applications ranging from high dollar medical diagnostic equipment or semiconductor processing equipment down to relatively low dollar uses such as drawer slides, door guides or other transport applications.

The choice of a type of linear guide is not usually determined by the desired mode of failure, except in one case. In contaminated environments, life of the system is often the most important design consideration. Recirculating ball guide systems are sensitive to contamination but can be protected by bellows covers and shields. This increases component and installation cost. Guide roller systems excel in these conditions for several reasons:

Guide roller systems are largely unaffected by contaminated environments. The radial bearings are sealed keeping particulates away from the ball bearing compliment. Contaminants that land between the roller and the track are naturally swept away by the wiping action of the roller. Costs remain low due to the economy of guide roller components, the ease of installation and the lack of additional components to isolate the guide.