

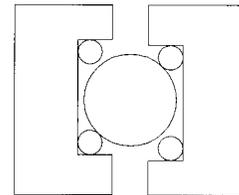
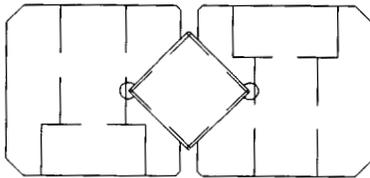
Rail and retainer length is dependent on the load carrying capacity, rigidity and required travel. The user must define the load capacity and travel required before calculation of rail set can be conducted. The rail set should be chosen to meet maximum travel. The retainer should be guided over its entire length by the rails. The rail length should be about 1.5 times the travel required and the travel should be around 80% of the maximum IE: Rail length > 1.5 x's travel required.

As a guideline the retainer should always make 1/2 the stroke of the traveling rail and should never act as a mechanism for stopping movement. Retainer length < Rail length - travel required/2. The distance (width) between the sets of rollers should never exceed the retainer length. To determine the # of rollers per retainer divide the retainer length by the distance between the centers of the rollers (Pitch). IE: Retainer length/pitch = # of rollers (always round down to the next even number to allow for retainer ends). Pitch is dependent on the type of retainer selected. The increase in travel attained by removing 1 bearing is equal to pitch x's 2. Extended retainers are practical when a short mounting base is to be moved on a long guideway. They ensure that the movable section is supported over the entire travel, and load capacity and rigidity requirements are met.

MAXIMUM SPEED AND ACCELERATION

Crossed roller linear bearings can be used at speeds up to 30"/sec and accelerations up to 90"/sec². Higher speeds may be obtained in certain applications depending on factors such as load, lubrication, preload force and travel requirements. Please consult factory for guidelines.

COMPETITIVE COMPARISONS



ALM uses only crossed roller ways in all slides and stages. We do not offer ball bearing and drill rod ways. In the ball/drill rod systems, line contact between the drill rod way and the mounting surface causes brinelling of the way into the material causing distortion that can open gaps of thousands of an inch between the ball and the drill rod. Crossed roller bearings provide up to 100 times the contact area of ball bearings. This leads to extended life expectancy, higher accuracy over time, and greater load carrying capacity. Some slide and stage manufacturers have replaced the ball bearings with crossed rollers while maintaining the drill rod way. Though called a crossed roller product, the life expectancy of this design last only 25-30 percent of those with precision ground ways, while sacrificing travel accuracy.

SPECIAL AND CUSTOM CAPABILITY

ALM is capable of supplying application specific crossed roller bearing sets. Our unique position as the sole U.S. manufacturer of crossed roller ways allows ALM to respond quickly with application specific roller retainers, ways, bearings, etc. Standard modifications include retainer material, roller pitch, corrosion resistant options including wipers and plating, vacuum compatible components, non-matched length ways with precision entry angles, etc. Custom fabrication capability includes but is not limited to 400 series stainless steel ways, aluminum ways, special length ways, non-standard mounting hole configurations, etc. Please consult our expert applications engineering staff for specific technical assistance.