

1.1. Structure and Features of the Flat Roller

With the Flat Roller, precision rollers compliant with JIS B 1506 are installed in pockets of a cage made of a thin steel plate pressed into M shape (in cross section) to increase its rigidity. Thanks to its structural design, the rollers do not fall off because they are held in cage pockets. Since the cage, which is incorporated with rollers having a diameter of 5 mm or larger, is of roller-lifter type, smooth motion is achieved without damaging the raceway even if the hardness of the raceway is low. The Flat Roller is sandwiched between the two raceways. As the table moves, the Flat Roller travels by half the distance of the table in the same direction. For example, if the table moves 500 mm, the Flat Roller travels 250 mm in the same direction.

The Flat Roller is optimal for large machine tools such as planer, plano-miller and roll-grinding machine, and for locations requiring high accuracy such as surface grinding machine, cylindrical grinder and optic measuring machine.

●Large Load Capacity

Since rollers are installed in short pitches, the Flat Roller has a large load capacity, and depending on the conditions, it can be used on the raceway of a mold that is little hardened. In addition, the deflection rigidity of the table is almost the same as that of a sliding surface.

●Combined Accuracy of 90° V Surface and Flat Surface Supported as Standard

The Flat Roller is designed so that it can be mounted on the 90° V-flat sliding surface, which is the most common configuration among narrow guide types of tables and saddles of machinery. It allows the product to be used without major design change.

●Lowest Friction among Roller Type LM Systems

Since the rollers are evenly held in a light, rigid cage, friction between rollers is eliminated and skewing of the rollers is minimized. As a result, a small friction coefficient ($\mu = 0.001$ to 0.0025) is achieved, and stick slip, which is problematic with sliding surfaces, does not occur.

●Instant Connection of the Cage

When installing the Flat Roller in a large machine, it can easily be connected on the bed. This allows the Flat Roller to be installed even with the longest type.