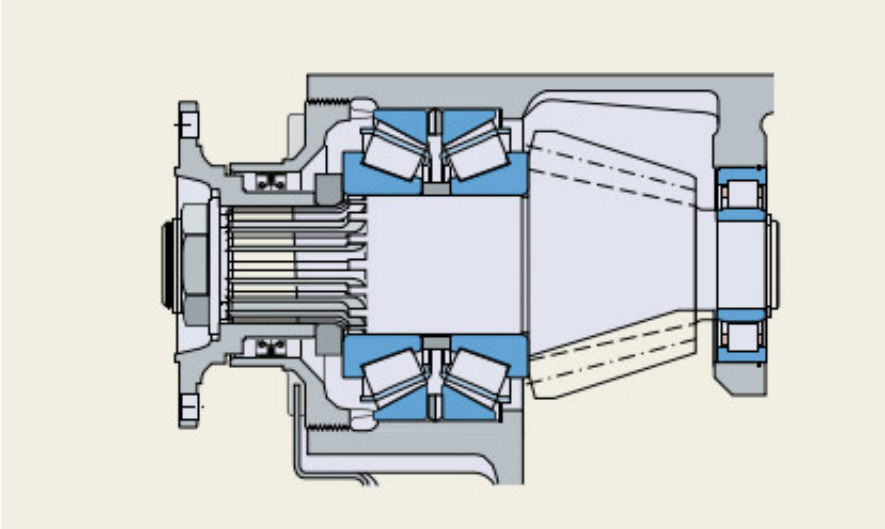
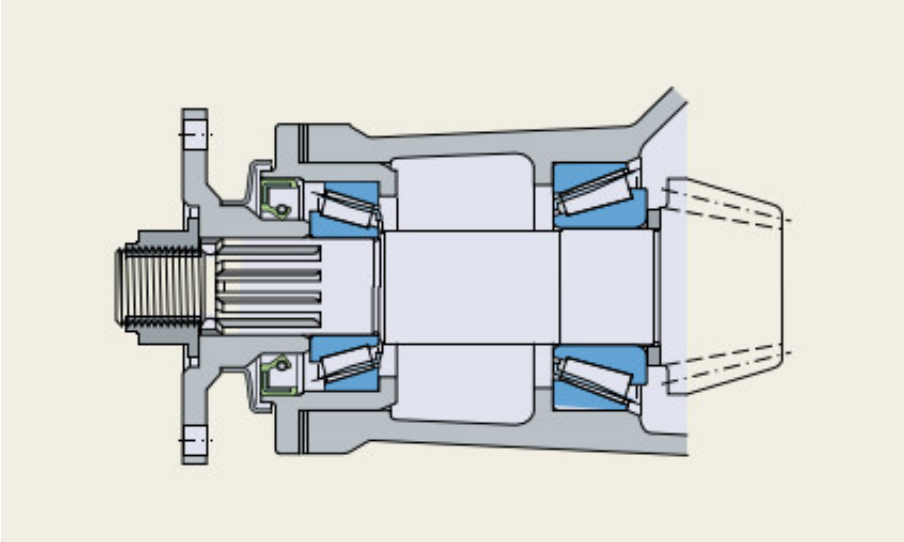
# How to choose the bearing preload properly?



This method can also be referred to as "ran- dom statistical adjustment". Using this method, the bearings, shaft, housing, and another components are manufactured to Normal tolerances. The components, which are considered fully interchangeable, are assembled randomly. For tapered roller bearings, this interchangeability also includes the inner ring assemblies and outer rings. To avoid high machining costs and making use of precision bearings, it is assumed that given the limiting values of the tolerances, it is statistically improbable that the extremes of the tolerance stackup occurs. If, however, accurate preload is to become obtained with as little scatter as possible, manufacturing tol- erances must be narrowed. The advantage of collective adjustment is that no inspection is necessary and no extra equipment is needed when mounting the bearings.



When selecting the preload for a bearing arrangement, the degree of stiffness increases marginally once preload exceeds a given optimum value. When exceeding this optimum value, friction and the resulting increase in heat can substantially reduce bearing shelf life. Excessive preload includes a risk that the operational reliability of a bearing arrangement is compromised. Thanks to the risk and complexity normally required to calculate an appropriate preload, SKF strongly recommends using our most modern engineering software tools, as an example, SKF

SimPro Quick and SKF SimPro Expert or contacting the SKF application engineer- ing service. When adjusting preload in a bearing sys-.
tem, it is also important that the established preload value, determined either by calcula- tion or from experience, is attained with the least possible variation. To reduce variation when mounting tapered roller bearings, such as, bum rap must be turned several times so that the rollers are not skewed and the roller ends talk with the guide lange of the inner ring. When the rollers are not fully settled into position, a much smaller preload than the requisite value results.