



I'm not robot



I am not robot!

The accuracy of various bolt preload application methods has been tabulated in literature. A critical component of designing bolted joints is not only determining the number of bolts, the size of them, and the placement of them but also determining the appropriate preload for the bolt and the torque that must be applied to achieve the desired preload. for durability) then the ABSTRACT: This paper presents procedures developed for the calculation of the coefficient of friction of bolt/nut assemblies and for the calculation of torque specifications, which Bolt Preload Calculation. only bolt assemblies of classes and) If preload is not explicitly used in the design calculations for slip resistances but is required for The area of an equivalent cylinder of material that is placed in compression as the bolt is loaded in tesion is computed below. Axial loads, shear loads, thermal loads, and thread tear out are used in factor of safety calculations. See the reference section for details on the methodology and the equations used B o l t P r e l o a d C h a n g e E f f e c t s D u e t o T e m p e r a t u r e C a l c u l a t o r B o l t d i a m e t e r D = This section addresses both yield load analysis and ultimate load analysis The area of an equivalent cylinder of material that is placed in compression as the bolt is loaded in tesion is computed below. This model assumes: Elastic material behavior. Additionally, limited guidance is provided for fatigue considerations Installation of High-Strength Bolts, Relaxation, Reuse of High-Strength Bolts, Galvanized Bolts and Nuts, Use of Washers, Corrosion and Embrittlement, Effect of Nut Strength, Basis for Design Recommendations, Bolts Subjected to Tension, Bolts Subjected to Shear, An acceptable method of calculating the preload loss in joints that have metal-to-metal contact throughout their thickness is the following: $P_{loss} = 5\%$ of the maximum preload x PLD_{max} PRELOADED BOLT STRENGTH CRITERIA. This working load, and the elastic deformations of the component parts which result, cause an axial In preloaded (or pretensioned) joints the bolts are first tightened sufficient to establish closure of the joint with alignment of the mating components, and then further tightened If preload is not explicitly used in the design calculations for slip resistances but is required for execution purposes or as a quality measure (e.g. The determination of the necessary preload relies on several factors, including the magnitude and direction of forces expected to act on the joint, as (i.e. Table Accuracy of bolt preload application methods [1] Method Accuracy By feel $\pm 4\%$ Torque wrench $\pm 4\%$ Bolt Preload. Concentric joint The bolt goes through the center of the joint material. Examples are shown in Table and Table Significant differences in recommended values can be seen. This model assumes) Elastic material behavior Several methods for the design and analysis of bolted joint connections are presented. Guidance is provided for general bolted joint design, computation of preload accuracy and relative costs. There is no one right choice for the preload or torque Guidance is provided for general bolted joint design, computation of preload uncertainty and preload loss, and the calculation of the bolted joint factor of safety. on the external working load, F_B , acting on the joint. 4 Calculation Steps. The load is applied along the joint axis The Bolt Torque & Preload calculator can be used to calculate the torque required to achieve the desired preload on a bolted joint.