

INTRODUCTION

The degree of tightness or looseness between two metal parts is known as the fit of the parts. In assembling the two parts, if the fit between the two mating parts is interference fit; i.e. an interference results in assembly, force is required to assemble or disassemble them. This type of assembly is economical and proved to be satisfactory for many types of work, such as locomotive wheels, railroad car wheels, pulleys, generators and motor generators and general machine manufacturing. The degree of force required to separate the two mating parts is defined as the "grip ability", and the ratio of this force to actual ultimate shear strength of the same mating surface area is defined as the efficiency in interference fit. For interchangeable parts, the stress between mating parts should not be above elastic limit for ductile material. For uninterchangeable parts, the stresses can be well above elastic limit and excessive fit is often used in important assembly units. However, for stresses above elastic limit, the increase in grip ability has a limit (1). Beyond this limit, the holding force gradually reduces to a certain value. Members are usually considered thick cylinder since they are open ends and no direct axial stress is present.

* Robert Russel "Factor affecting the grip in force, shrink and expansion fit". Mech.Eng. Proceeding V. 125, 1933 P. 495

** Tyler G. Hicks "Graphs for the choice of press fits." Mechanical World, May 20, 1949 p.p. 579 - 580