

Chapter 7

The ISO System of Limits and Fits - Inspection of Workpieces

SUMMARY*

This chapter specifies gages to ISO 1938 Part 1: Plain limit gages of linear size for use with the ISO System of Limits and Fits in ANSI B4.2. The new standard used to be the old Recommendation published in 1971, and GO, NOGO gages made to this standard are available for preferred sizes throughout Europe. This new standard is based on the old recommendation and was finalized in 2012 by TC 213/WG6 hosted by NIST. The standard specifies specific location and limits for the gagemakers tolerances, wear allowances, measurement uncertainties and form controls. This chapter specifies the most important metrological and design characteristics of plain limit gages of linear size and defines the different types of plain limit gages used to prove conformance with linear dimensional specification associated to linear size. It also defines the design characteristics and the metrological characteristics for these limit gages as well as the new or wear limits state Maximum Permissible Errors (MPEs) for these characteristics. The ISO 1938-1 standard also describes the use of limit gages and it covers linear sizes up to 500 mm.

It is recommended to specify preferred metric sizes and tolerance zones as shown in Chapter 6 in order to minimize the cost of tooling and gages. By doing so, a matrix of standard plug and ring (snap) GO and NOGO gages may become off-the-shelf available inspection tooling similar to what we see in countries having used the ISO Limits and Fits for more than 70 years.