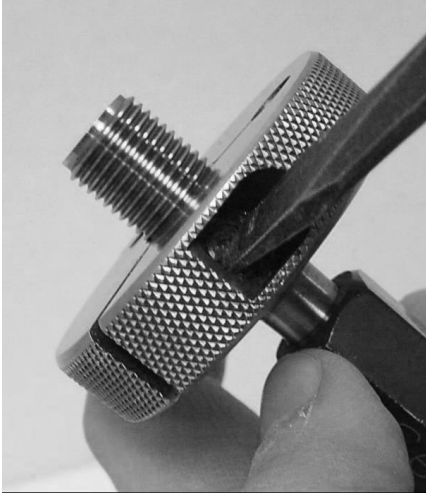
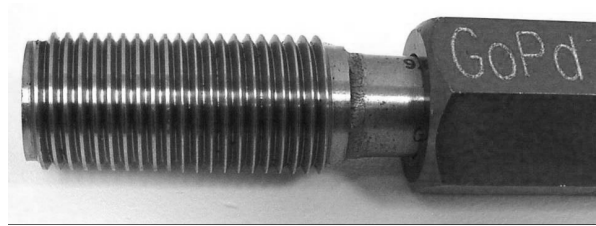


ASME Requires Adjustable Ring Gages be Calibrated Using Threaded Setting Plugs



ASME B1.2 Adjustable Ring Gage
Being Set on Setting Plug



ASME B1.2 Truncated Adjustable Ring Gage Setting Plug

Occasionally we are sent GO and/or NOT GO (NOGO) adjustable thread ring gages to be calibrated and certified that were manufactured to non-standard pitch diameter sizes (sizes other than inch 2A or 3A sizes or 6g or 6h metric sizes). In these cases we ask the gage owner to provide us with the matching setting plug with which to set and certify the gages. In most cases the owner responds that they did not buy the setting plug when they purchased the non-standard ring gages and they are not available.

In these cases, if the gage owner wants to have the gages calibrated and certified to meet the requirements of the American Society of Mechanical Engineers (ASME), from which the standards for adjustable thread ring gages come the customer has only two alternatives. One, they must purchase the appropriate setting plug on which to set the ring gage, or two, they must send their non-standard ring gages back to the original gage manufacturer who had to make a setting plug to originally make and set the gages for re-calibration.

ASME only recognizes the use of setting plugs to properly set adjustable ring gages.

ASME B1.2, *Gages and Gaging for Unified Inch Screw Threads*, is the document that governs the design and calibration of thread gages. This document designates the adjustable GO thread ring as "Gage 1.1" and the NOT GO (NOGO) adjustable thread gage as "Gage 1.2". The purpose and use of these gages are covered by sections 5.1.1 and 5.2.1 respectively. These state in part:

5.1.1Adjustable GO thread ring gages must be set to the applicable W tolerance-setting plugs.....

5.2.1.....The NOT GO thread ring gage, when properly set to its respective calibrated thread-setting plug, represents the NOT GO functional diameter limit of the product external thread.....

The calibration requirements for all types of thread gages are charted in Table 12 of ASME B1.2. Below are excerpts from that table regarding GO and Not GO adjustable thread ring gages:

Thread Gages and Measuring Equipment	Setting Gages and Standards
1.1 GO ring	W thread-setting plug GO; X tolerance plain plug for minor diameter for small sizes
1.2 NOT GO (LO) ring	W thread-setting plug NOT GO (LO); X tolerance plain plug for minor diameter for small sizes

Several non-standard adjustable thread ring gage owners have informed us that they have had their gages calibrated and certified at other laboratories which did not raise the question of the setting plugs and they wonder why we make this an issue. There is a wide spread misunderstanding on the part of many gages owners, and even many reputable gage calibration companies, that adjustable ring gages can be calibrated and certified using very sophisticated measuring equipment such as universal length measuring (ULM) machines or coordinate measuring machines (CMM).

This is erroneous. ASME B1.2 only recognizes the use of setting plugs for the calibration and certification of the GO (Gage 1.1) and NOT GO (Gage 1.2) adjustable thread ring gages. The calibration and certification of adjustable thread ring gages by any means other than setting the gage to its appropriate setting plug is not valid regardless of the equipment used or the certification or the accreditation held by the calibration source.

Adjustable ring gages are internally threaded cylinders with two or three splits in their interior. When an adjustable ring gage is adjusted, its inside diameter and pitch diameter is not perfectly round. When an adjustable ring gage is set to the appropriate setting plug, the gage provides an effective circular boundary within which to qualify a threaded product even though its interior surfaces are not perfectly round. Since the interior gage diameters are not round, it is impossible for an adjustable ring gage to be measured and certified using equipment such as a ULM or CMM to determine whether its effective gaging size is correct or not.

Gage owners beware! Adjustable ring gages certified without the use of setting plugs are probably inaccurate.

Unless adjustable ring gages are set to the appropriate threaded setting plugs, as specified by ASME B1.2, gage certifications of those gages are invalid because they are not set according to the ASME standard that governs their design and calibration. Further more, adjustable ring gages that are calibrated or set by any means other than being set to a setting plug are probably set to an inaccurate size and may accept non-conforming threaded products or may erroneously reject conforming products.