

How to Use Thread Plug Gages

Go and no go thread plug gages are very easy to use. The user must first select the correct size thread plug gages for the corresponding externally threaded product. Thread plug gages should be clearly labeled on the handle but also on the gage members when possible. This is obviously critical but sometimes difficult as drawings and specification requirements are frequently missing, incomplete, or incorrect. The user of the thread plug gages should ensure that the correct major diameter, TPI/pitch, Class of fit, and any special pitch diameters are clearly specified. The user should also confirm that the gages conform to the proper national or international standard. In the USA it is commonly assumed that metric thread plug gauges conform to the ANSI/ASME B1.16M but this may not be the case particularly when working with an international customer or a globally recognized company with manufacturing facilities located in the USA and engineering located in Asia or Europe. Other metric standards like ISO or JIS may be required. It is also important to confirm that pitch diameters on the gages match the part specification. For example a part gaged prior to plating will have special pitch diameters. The thread plug gages selected should be engineered and made correctly to the preplate or before plate pitch diameters. Thread plug gauges should be marked with B/P or P/P designation for quick and easy identification. Finally the inspector should confirm the gages are calibrated. It is always advisable to recheck the thread plug gages prior to use regardless of the calibration sticker's current status. Many companies arbitrarily select annual frequencies of calibration rather than basing frequency on usage. This can be dangerous as thread plug gauges can be worn out of tolerance or damaged during the course of a production run. Thread Measuring wires or a 3-Wire Thread Measuring System can accurately measure pitch diameter and confirm the thread plug gage is still within tolerance. The best thread plug gaging practice utilizes several sets of thread plug gages. One or two gages

can be used for in process inspection while another gage can be used for final inspection and a master thread plug gage retained for dispute in the event that gages fail to correlate on acceptance or rejection.

AGD thread plug gauges are designed with a chip groove for sizes above .164" (#8). The chip grooves purpose is to clean the threads of the work piece but it should really not be relied on. It is highly recommended that the work piece be as clean and burr free as possible to reduce friction and wear on the gage. A clean thread prior to gaging will provide the inspector with more sensitivity of thread fit. Thread plug gages should be cleaned with solvent or air and then frequently recoated with a rust preventative/gage preservative. In clean room environments Isopropyl alcohol may be substituted to help reduce friction on the gages. Thread plug gauges should be protected in plastic tubes or coated in wax when not in use to prevent nicks to the threads. All gauging whenever possible should be done over an inspection table in the event that the gage is accidentally dropped. If a gage is dropped it should be immediately re-inspected for damage..

The go thread plug gage should engage the internal threaded part with very little force used. The engagement should be smooth. There is no specification regarding torque or pounds of pressure for using thread plug gages. Common sense should be applied based on factors of thread size, pitch, and application. If the gage starts to bind, the inspector should stop before damaging the part or the gage. The part may be undersized or tapered. Other possibilities include lead error or a damaged thread. With fine threads the inspector should be careful to not cross thread the parts.

It is important to use the no go gage as it checks pitch diameter exclusively. It is unaffected by other conditions in the screw thread as it is intentionally truncated on the crests and with greater clearance applied on the roots of the thread. The no go thread plug should not enter the part more than 3 turns

although in practice it is advisable to limit the amount of turns to 1 ½ - 2 turns max. The user just simply counts turns. The end user should review the applicable thread specification in detail as there are variations to the above practice.

Feel free to contact us by phone or email if you have any questions or requirements regarding this topic.

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