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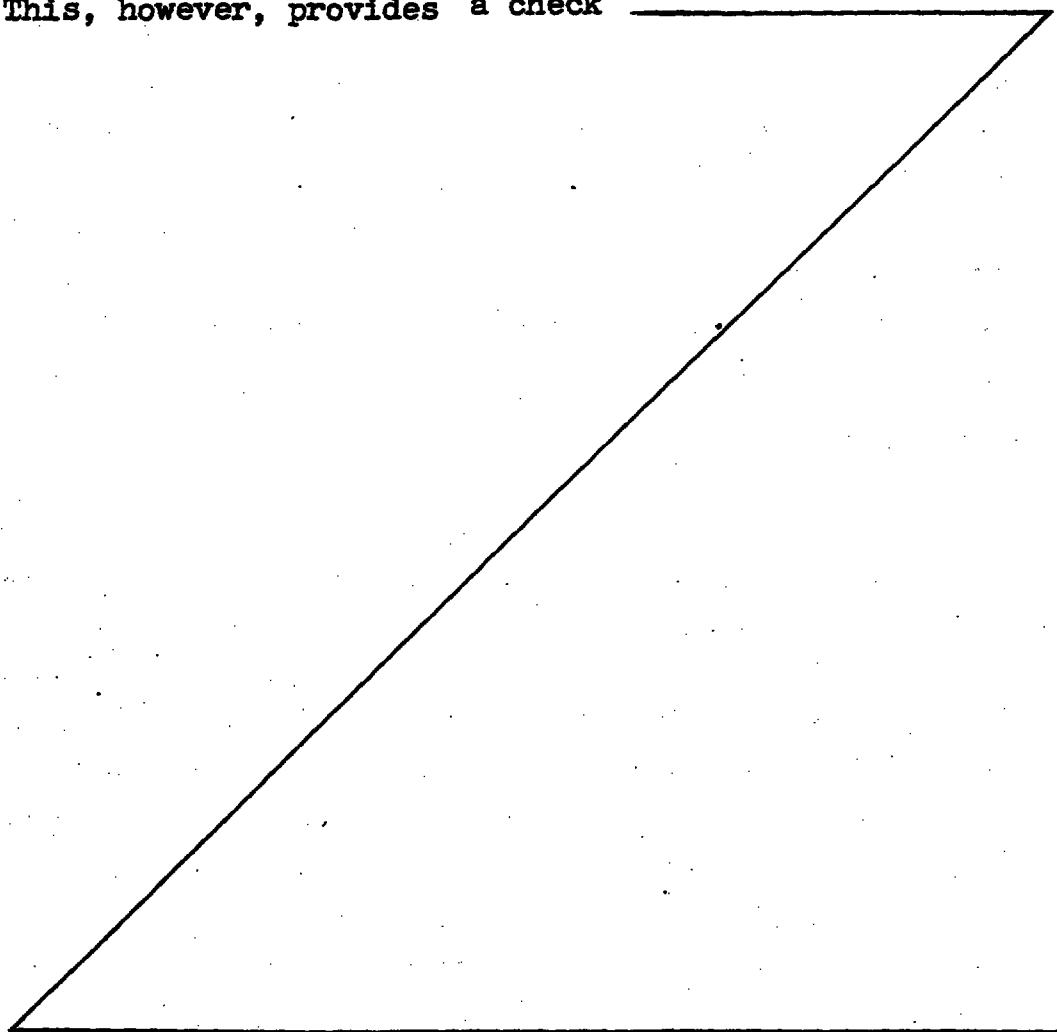
"THREAD MEASURING TOOL FOR MEASURING MECHANICAL OR
ENGINEERING THREADS"

This invention relates to a thread measuring tool for measuring mechanical or engineering threads with a plug gauge at each end, said gauges being formed as thread gauges of the "go" and "no go" type.

5 When it is required to check whether the thread inside a bore is correct and within certain given tolerances, a thread gauge is used. A thread gauge for checking the thread inside a bore is normally in the form of a plug gauge with a thread at each end, namely a so-
10 called "go" side and a "no go" side. The "go" side is a profile-ground threaded portion which is machined as closely as possible to the correct profile and the correct dimension. The "go" side must be able to be screwed in without the use of force. The "no go" side
15 is normally provided with a flank diameter which is just in excess of that permitted by the stated tolerance. The top and bottom of the thread is ground free, thus ensuring that these do not restrict the screwing in, but the "no go" side must not be capable of being screwed into the threaded

hole. With such a plug gauge, one can reveal most of the errors which can arise when producing threads in bores.

In connection with work demanding a very accurate thread, and where one therefore uses a limit gauge
5 to check the quality and the tolerance of the thread, it is also often prescribed that the threaded bore must be of a certain depth, and possibly how great the tolerance must be with regard to the depth. Therefore, after having checked the thread tolerance, one must measure the depth
10 of the hole, for example with a micrometer depth gauge. This, however, provides a check



only of the depth of the hole, and not of how far the thread extends down into the hole.

The object of the present invention is to provide a
5 thread measuring tool capable of checking the quality of a thread inside a bore, while at the same time measuring the depth of said bore in that it measures how deep the thread extends down into the hole.

10 This is achieved by forming the measuring tool as characterized in accordance with claim 1.

With the measuring tool according to the invention one can carry out a simultaneous measurement of the depth
15 of the threaded hole and the quality of the thread. It is thus possible to ensure that the threaded hole is as specified while at the same time avoiding all the disadvantages and possibilities of error involved in carrying out two measurements, namely a measurement
20 of the depth of the bore and a measurement of the quality of the thread.

By forming the measuring tool according to the invention as presented in claim 2, a correct and uniform
25 measurement is achieved every time, the reason being that spring pressure is used to press the plug gauge holder down against that surface in which the threaded hole to be checked has been bored. What is thus provided is a very simple tool which is always ready
30 for use, and wherein the spring pressure always returns the tool to the zero position when it is not in use, and wherein the plug gauge is protected by the holder.

By forming the measuring tool according to the invention as presented in claim 3, a very plain and simple mechanical construction is achieved.

5 The invention will now be explained with reference to the accompanying drawing, which shows an example of a measuring tool according to the invention, in that

10 fig. 1 shows a cross section of the measuring tool, and

fig. 2 shows the tool during the measurement of a threaded hole.

15 In fig. 1 is seen a measuring tool with a plug gauge 4 which comprises the "go" side, and a plug gauge 3 which comprises the "no go" side. The plug gauge 3 can be of the normal "no go" type having a flank diameter in excess of the greatest permissible tolerance or
20 less than the smallest permissible tolerance, all depending on the measuring principle one uses.

In a housing 1 is disposed a plug gauge holder 5, which under spring pressure from the spring 8 is biased
25 ed towards an internal shoulder in the housing 1. Through the whole of the tool there extends a through-going spindle 2, the one end of which forms the "no go" gauge 3 and the other end the "go" gauge 4.

30 The plug gauge holder 5 is freely rotatable around the through-going spindle 2, this rotation being restricted only by the strength of the spring 8. The holder 5 is provided with a scale 6, thus enabling the user to see how large a part of the plug gauge 4 extends outside

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the holder 5, see fig. 2.

The "no go" gauge 3 has had the top of the thread removed, so that one can easier check the thread in a
5 bore without ruining it.

An end cap 7 is screwed on to the housing 1 by means of a thread 10. The end cap 7 and the through-going spindle 2 are connected to each other in a fixed man-
10 ner.

When the thread measuring tool according to the invention is to be used, one holds the housing 1, which can therefore be provided with a friction facing, e.g. it
15 can be knurled or the like. The plug gauge extends out of the holder 5 a little, e.g. 2 mm, so that the scale 6 on the holder 5, which is read off against the edge of the housing, starts at 2 mm. One first tries with the "no go" plug gauge 3. If this check shows that the
20 thread is apparently correct, one turns the measuring tool over and the plug gauge 4 is screwed into the threaded bore 9 which is to be checked. When screwing in the gauge 4, the surface 11 and the holder 5 will abut each other when the gauge has been screwed in the
25 above-mentioned 2 mm. Further screwing in will result in the plug gauge holder 5 being fed telescopically up into the housing 1, see fig. 2, until the gauge 4 can no longer be screwed in, and one can then read the depth of the thread direct from the scale 6.

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The coil spring 8, which sits compressed between the end cap 7 and the plug gauge holder 5, provides suitable friction between the housing 1 and the holder 5, thus ensuring that the holder 5, which is disposed in

the holder in a telescopic manner, is always either pressed against a shoulder in the housing. i.e. in its zero position, or pressed against the surface 11 of the workpiece when a thread is being measured.

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By providing a sliding friction fit between the gauge holder 5 and the housing 1, it is ensured that dirt or swarf cannot enter the tool, thus enabling it to be used out in the workshop itself without risk of damage.

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The spring 8 always presses the gauge holder 5 out into the zero position or the start position, in which the holder surrounds and covers the ground thread on the plug gauge 4. Thus protection against damage is also provided for the expensive profile-ground thread portion on the gauge when the tool is not being used, but is perhaps placed on a workbench together with other tools or articles.

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The invention as described above has an ordinary scale 6 which, for example, can be engraved direct into the gauge holder 5 or printed on said holder in a known manner. It will be obvious that other methods of indicating the result of the measurement can be used. One can use, for example, an electronic reading device with a digital display which provides a direct indication of the depth of the thread measured by way of numbers.

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Preferably, the parts are produced in aluminium, for example hard aluminium, or similar workable materials. The through-going spindle 2 with the two plug gauges 3 and 4 is, however, made of a material capable of

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being hardened, e.g. steel, the reason being that the two gauges must be very wear-resistant, so that even with frequent use they maintain the desired tolerances.

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CLAIMS

1. A thread measuring tool for measuring mechanical or engineering threads comprising two thread gauges formed as plug gauges of the "go" and "no go" types respectively, and a measuring value indicator, for example a scale at the "go" gauge for measuring the depth of a threaded hole.
2. A thread measuring tool according to claim 1, wherein the measuring value indicator is provided on a plug gauge holder which is in friction connection with a housing of the measuring tool, whereby said plug gauge holder under spring pressure can be displaced in a telescopic manner inside the housing, and the plug gauge holder surrounds the "go" gauge.
3. A thread measuring tool according to claim 2, wherein both the friction contact and telescopic spring pressure is effected by means of a helical spring which is disposed between the plug gauge holder and the housing of the measuring tool.
4. A thread measuring tool for measuring mechanical or engineering threads substantially as hereinbefore described with reference to the accompanying drawing.