

Headspace Gauge Set (PN 08.103) for

o .303 British (metric 7,7 × 56 mm R) / Lee-Enfield

Thank you for choosing a high-quality **TECTAL** product!

- ✓ All parts "Made in Austria"
- ✓ The gauges contained in the *headspace gauge set, .303 British / Lee-Enfield* are surface hardened and precision ground for longevity, robustness and precision.
- ✓ The *headspace gauge set .303 British / Lee-Enfield* is a practical inspection tool for quick and easy checking of the headspace of firearms chambered in .303 British by means of a "GO", and "FIELD" gauge acc. to *military specification* and an additional "NO-GO" gauge



Supplied Parts:

TECTAL Headspace Gauge Set (PN 08.103) for .303 British / Lee-Enfield consisting of

- 1 pc. "GO" gauge (one "dot" marking)
- 1 pc. "NO GO" gauge (two "dot" marking)
- 1 pc. "FIELD" gauge (three "dot" marking)

GENERAL INFORMATION

HEADSPACE

Headspace is one of the critically important dimensions for the safe and proper function of a firearm regardless of cartridge or calibre.

Headspace will typically increase over the service life of a firearm as minute deformation, stretching and wear of the parts in an action of a firearm will occur, especially in high-power rifles.

In case of the **rimmed cartridges** such as the .303 British round headspace is the space between the bolt face and the rear chamber face occupied by the actual rim of the cartridge case.

Insufficient headspace will not allow ammunition which is within specification to chamber correctly thereby typically preventing the closing and locking of the bolt and subsequent firing.

Excessive headspace will leave too much space between the chamber face of the action and the base of the cartridge as the cartridge is moved forward during the closing of the bolt or the impact of the firing pin. This may cause the case to stretch and rupture or the primer to rupture.

Either failure releases high pressure gas and potentially fragments from the action of the firearm which may cause serious injury to the shooter or persons standing nearby and damage to the firearm!

Also continued use of a gun with excessive headspace will eventually result in subsequent, secondary damage to its action (receiver/bolt).



HEADSPACE GAUGES

The *headspace gauges for .303 British / Lee-Enfield* come in three sizes based on published “mil-spec” values*:

- GO* – 0.064 inch
- NO GO – 0.068 inch
- FIELD* – 0.074 inch

The listed values are nominal. Minimal tolerances for manufacturing purposes apply.

As Lee-Enfield rifles are historic firearms which were in production for over 50 years including production constraints imposed by two major wars and whose production ended more than 65 years ago it is important to consider and use our product in this context.

When getting involved in historic firearms knowledge of the background and manuals is recommended but especially when consulting a gunsmith he/she shall be familiar with the firearm and the technical specifications, procedures and manuals.

HISTORIC CONTEXT:

The thickness values of the **GO and FIELD gauges** correspond to the official British Army publications e.g. “*Instruction for Armourers*”, *The War Office 1931* and “*Small Arms and Machine Guns, Mechanical and Electrical Engineering Regulations*”, *Army Council 1951*.

The gauges are not produced acc. to CIP or SAAMI, but acc. to „military-specification“ for Lee-Enfield rifles in the calibre .303 British.

These rifles were checked and if so required overhauled by armourers acc. to the instruction manuals of the British Army using gauges of the GO und FIELD thickness. An example of the procedure:

“4. Action: Bolt and bolt-head.

(i) Test the distance of the bolt from the end of the chamber with gauges .064-inch No. 1 and .074-inch No. 1; the bolt should close over the .064, but not over the .074; when using the latter gauge, light thumb-pressure only should be applied to the knob. Also test to see that the wing of the bolt-head does not lift off the rib of the body.”

(Instruction for Armourers 1931, PART II Small Arms, Section 3.-- Examination / The War Office, 1931)

The **NO GO gauge** was made popular by companies such as OKIE and adopted by TECTAL to have – as common nowadays – an additional incremental step to better evaluate the headspace. Secondary sources also report values for NO GO gauges with 0.067“ as SAAMI / Australian resp. 0.070“ as CDN Military.

TECHNICAL CONTEXT:

- The gauges allow for the empiric determination of resp. check for a range of headspace with two resp. three different sized gauges if applied correctly.
- The gauges serve as a comparatively easy to use checking tool but when in doubt they **DO NOT** constitute or replace a full inspection of the rifle by a gunsmith familiar with the firearm as multiple components and factors contribute to the safety and proper function of a complete firearm!

GO Gauge (one “dot” marking):

Utilized for checking the minimum acceptable headspace acc. to military specification. The thickness of 0.064 also conforms to the minimum CIP chamber headspace requirement.

Typically used when re-chambering or re-barrelling a firearm.

**GO**

PASS → the bolt **DOES** fully close with light pressure

Sufficient, minimum headspace

FAIL → the bolt **DOES NOT** close with light pressure

Insufficient minimum headspace, may not chamber a round or function correctly or the bolt may require excessive force for closing and locking thereby causing damage to the firearm (and cartridge).

If the GO check is failed a further inspection by a gunsmith familiar with the firearm is strongly recommended with at least a correction of the headspace being required.



NO-GO Gauge (two “dot” marking):

Utilized to check for increased headspace.

PASS → the bolt **DOES NOT** fully close with light pressure
Headspace within expected tolerance

FAIL → the bolt **DOES** fully close with light pressure
Increased headspace - Especially when shooting re-loaded ammunition, the risk of case rupture may increase considerably!

If the NO-GO check is failed a detailed inspection of the firearm and increased caution especially when using re-loaded ammunition is strongly recommended.



FIELD Gauge (three “dot” marking):

Used to check the maximum permissible headspace acc. to military specification.

FIELD and therefor the maximum permissible headspace was set for military firearms to reflect the conditions of arms manufacturing and account for adverse factors such as dirt, mixed war time production ammunition, general wear and tear etc.

PASS → the bolt **DOES NOT** fully close with light pressure

If a military firearm passes, it is - in terms of headspace - considered acceptable to fire original specification ammunition.

The following ammunition shall NOT to be used in such a firearm:

- 1.) military surplus ammunition of unknown quality which may have degraded over time potentially causing dangerous over pressure*
- 2.) modern high-performance ammunition which exceeds the original specifications in terms of pressure*
- 3.) re-loaded ammunition*

FAIL → the bolt **DOES** fully close with light pressure

Excessive headspace, the firearm shall be considered NOT safe to fire and a detailed inspection by a gunsmith familiar with the firearm shall be considered mandatory to determine its suitability for further use.

Besides any other repairs deemed necessary - depending on the overall condition - at least a correction of the headspace to get the rifle back to military specification headspace is required.



INSTRUCTIONS FOR USE

Use in Lee-Enfield rifles / Cock-on-close systems:

Keep the trigger depressed during the closing of the bolt to prevent cocking of the firing pin. As such the bolt can be closed very gently while feeling the slightest resistance which allows for a very accurate check with the headspace gauges.

1. Before maintaining or working on any firearm always ensure that it is unloaded and safe!

While pointing the firearm in a safe direction remove any magazine and ammunition from the firearm and ascertain it is unloaded by locking the slide or bolt to the rear resp. by unlocking and moving the bolt to the rear and visually inspecting the chamber before working on or cleaning it! If loaded follow the proper procedures to unload the firearm safely!



Firearms Safety is your responsibility!

2. Open and close the bolt on an empty chamber several times while keeping the trigger depressed taking note of the pressure required when closing and locking the bolt and the associated "feeling". Careful, consistent handling is important during the use of the gauges to ensure proper and repeatable results!
3. Remove the protective oil film from the gauges in preparation for checking and ensure that the bolt face as well as the rear chamber face - as the reference plains for the following checks - are clean!
4. Open the bolt sufficiently to allow for the insertion of the selected gauge onto the bolt face while aligning the notch in the gauge with the extractor. The circular hole shall align with the firing pin, it is however NOT recommended to dry-fire the weapon during the check! The side of the gauge showing the markings may be facing either way as the markings are for identification purposes only.



Recommended sequence

"GO" → "NO-GO" → "FIELD"

5. With the gauge inserted, gently slide the bolt forward to ensure that the gauge remains in position and with light pressure (see point 2.) try to close the bolt.

- To prevent a dislocation of the gauge a muzzle up position is advantageous.
- For use in Lee-Enfield rifles / Cock-on-close systems keep the trigger depressed during the closing of the bolt to prevent cocking of the firing pin. As such the bolt can be closed very gently while feeling the slightest resistance which allows for a very accurate check with the headspace gauges.
- It is recommended to proceed in the sequence “GO” → “NO-GO” → “FIELD”.



*If resistance to closing can be felt, **DO NOT force the bolt closed on a gauge!***

Forcing the bolt will cause damage to the firearm and the gauge and negate any meaningful result of the check.

6. After completing the headspace check, re-oil and safely store the headspace gauges.

NOTES ON USE AND MAINTENANCE

USE



The gauges allow for the empiric determination of resp. check for a range of headspace with two resp. three different sized gauges if applied correctly.



The gauges serve as a comparatively easy to use checking tool but when in doubt they DO NOT constitute or replace a full inspection of the rifle firearm by a gunsmith familiar with the firearm as multiple components and factors contribute to the safety and proper function of a complete firearm.

 If resistance to closing can be felt, **DO NOT** force the bolt closed on a gauge!
Forcing the bolt will cause damage to the firearm and the gauge and negate any meaningful result of the check.

 If in doubt or when the checks are failed **DO NOT** use the firearm and have a detailed inspection of the firearm performed by a certified gunsmith familiar with the firearm to determine its suitability for further use and to perform any required maintenance and repair.

The information provided in this manual is as accurate as possible. The correct application and resulting actions are the customers responsibility!

MAINTENANCE

The *headspace gauge set .303 British / Lee-Enfield* requires a small amount of maintenance and care:

- Re-oil after use → the gauges are not corrosion resistant.
- Protected from damage → the gauges are precision parts and shall be handled and stored with care. Use of the plastic container in which the gauges are supplied is recommended for safe storage.
- Do not use any kind of abrasive cleaning equipment which may change the thickness of the gauges!

In case of any questions please contact us at
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