Sinus Brake assembly-/ operating manual

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1 Introduction

With the Sinus Brake, you have acquired an efficient, unique and high-quality "Made in Germany" tool for your rifle that you will enjoy using for a long time. The Sinus Brake saves you time-consuming setting depth tests and helps you achieve your goal without wasting resources. The main focus during development was to combine the best features of precision, recoil management and shooter stress in one tool.

For this reason, we wish you good shot groups and a pleasant recoil. Let the quality convince you.

Please read these operating instructions carefully **before** use and follow the safety instructions contained therein.

The bullet diameter is engraved in the side pocket of the brake. This is a maximum of .338 inch or 8.6 mm. Please check that the caliber of the Sinus Brake and your rifle match before installation. Under no circumstances should larger bullet diameters be driven through the brake. This will inevitably result in damage to people in the vicinity and immediate destruction of the brake. Deecee precision GmbH is not liable for any damage caused by improper handling.

2 Safety rules

1. All safety rules that apply when handling firearms must be observed.
2. The Sinus Brake may only be used as intended and only on firearms that comply with the provisions of the Weapons Act. The firearms on which the brake is used must be safe in their function.
3. The Sinus Brake may not be used on fully automatic firearms.
4. The ammunition intended for the respective firearm must be in perfect condition and in accordance with the provisions of the relevant legal requirements of the laws.
5. All provisions of the Weapons Act and Explosives Act as well as the UVV (accident prevention regulations) must be complied with.
6. No ammunition is in the vicinity of the firearm when the brake is mounted/ dismounted. The firearm is unloaded.
7. Suitable eye and ear protection must be worn when firing, as the brake increases the sound pressure. The powder gases can direct particles in different directions.
8. The mounted Sinus Brake will more or less change the point of impact. This will require re-shooting.
9. Check whether the caliber bore of the Sinus Brake and your gun match.
10. Under no circumstances may buckshot, post, shotgun slugs or other rifle bullets such as steel, hard core or tracer bullets and their offshoots be fired through the brake.
11. The brake and the tuner must be checked for tight fit before each use.
12. No foreign particles may be present in the brake channel and the impact chambers.

3 Installation and start-up

3.1 Tools needed

- ~~For thread adapter version(old) with two flats: 25 mm open-end wrench or adjustable open-end wrench with smooth parallel jaws and min. 25 mm jaw width.~~
- For thread adapter version(new) with hook spanner hole: Hinged hook wrench size 22-35 with spigot for cross hole nuts DIN 1816.
- Hexagon socket wrench supplied
- Device with protective jaws for fixing the socket. Alternatively: Bipod and sandbag
- Spirit level. Alternative: built-in or attached spirit level
- Medium-strength threadlocker

3.2 Assembly preparation 

Before any work is carried out on the gun, the generally applicable safety rules must be established. The gun must always be unloaded and there must be no ammunition in the vicinity. The gun must not be loaded under any circumstances. Check that the caliber diameter of the brake and your firearm match. There must be no foreign particles in the barrel or in the brake.

The muzzle thread and the shoulder of the barrel must be cleaned of any powder residue and dirt. Then apply a thin layer of temperature-resistant grease or a suitable gun oil to the thread.

The Sinus Brake is already prepared for assembly on delivery and requires no further preparation in the form of lubrication work.

3.3 Torque specifications

Description	Tool	Dimension	Torque
~~Thread adapter old~~	~~Open-end wrench~~	~~25mm~~	~~25 Nm~~
Thread adapter	Hook wrench	22-35	25 Nm
Holding screws Thread adapter	Allen key 2mm	2mm	1,2Nm – 1,5 Nm
Screw plugs Compensator system	Allen key 2mm	2mm	0,3 Nm
Tuner retaining screw	Allen key 2mm	2mm	Max. 0.2 Nm. Torques >0,2 Nm destroy the brass insert
Flicker band screw	Allen key 2,5mm	2,5mm	1,2Nm – 1,5 Nm

3.4 Install

Always use tools that are in perfect new condition for installation. Otherwise the torques cannot be transmitted correctly and the screw drives will be damaged.

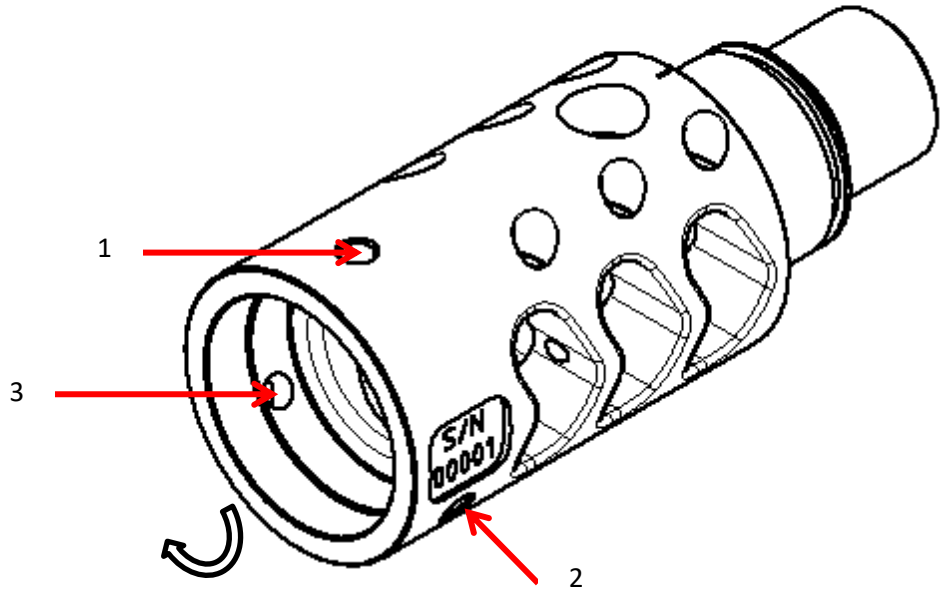
The muzzle thread adapter must be screwed onto the prepared muzzle thread of the gun. This is hand-tightened to a torque of 25 Nm using a size 22-35 articulated hook wrench with a pin for DIN 1816 cross-hole nuts.

The gun should be secured against twisting, i.e. held on the barrel or fixed in a clamping device with protective jaws. The gun must now be balanced. You can use a cocking device or a bipod with a sandbag for this. Use a spirit level to correct any tilting of the gun. Also make sure that the gun is level.

The brake body together with the tuner is now screwed into the muzzle thread adapter and tightened slightly until it stops. The brake body is then screwed back a little and aligned using the built-in precision spirit level. Check again that the gun and brake are aligned with each other. This guarantees that the flow channels and the compensator system can act at right angles to the gun.

The threaded pins and the threaded holes used for fastening are now degreased with an appropriate agent such as isopropanol. The easiest way to apply the degreasing agent to the threaded hole is with a soaked cotton bud.

To prevent loosening, the threaded pins must be glued in with a medium-strength threadlocker.



Slightly tighten the top grub screw (1) of the thread adapter. Then lightly tighten the other grub screws (2 & 3) in a clockwise direction. Then tighten all grub screws in the sequence described above to a maximum torque of 1.5 Nm. Please carry out this step quickly, otherwise the threadlocker will already be setting.

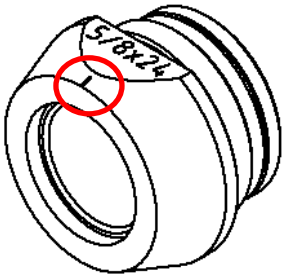
Check that the brake is firmly seated and use the built-in precision spirit level to check that the brake and gun are still aligned.

We recommend a curing time of 24 hours for the threadlocker before using the brake.

The Sinus Brake is now fully assembled. We assume that the caliber of the gun has already been checked with the caliber bore of the brake. If not, carry out this step now.

4 Maintenance and inspection

- There must be no foreign particles in the brake channel and the impact chambers.
- The brake and the tuner must be checked for tightness before each shot and at least every 100 shots.
- Check the brake for damage. If the brake is visibly damaged, it must not be used under any circumstances.
- Clean the brake every 250 shots with a mild cleaning agent, water and a small nylon brush.
- Very stubborn incrustations can also be removed with a soft brass brush and gun oil, which is often used for barrel cleaning.
- Always bear in mind that a contaminated brake can also affect barrel vibration.
- If the fixing screws of the threaded adapter have not been glued in as recommended, then you must retighten these screws to the correct torque after 100 shots. Glued-in screws must not be retightened, as this will destroy the adhesive bond.
- After 500 shots or half a year, unscrew the entire brake including the thread adapter from the gun. Mark the correct position on the barrel beforehand. There is an auxiliary marking on the thread adapter.

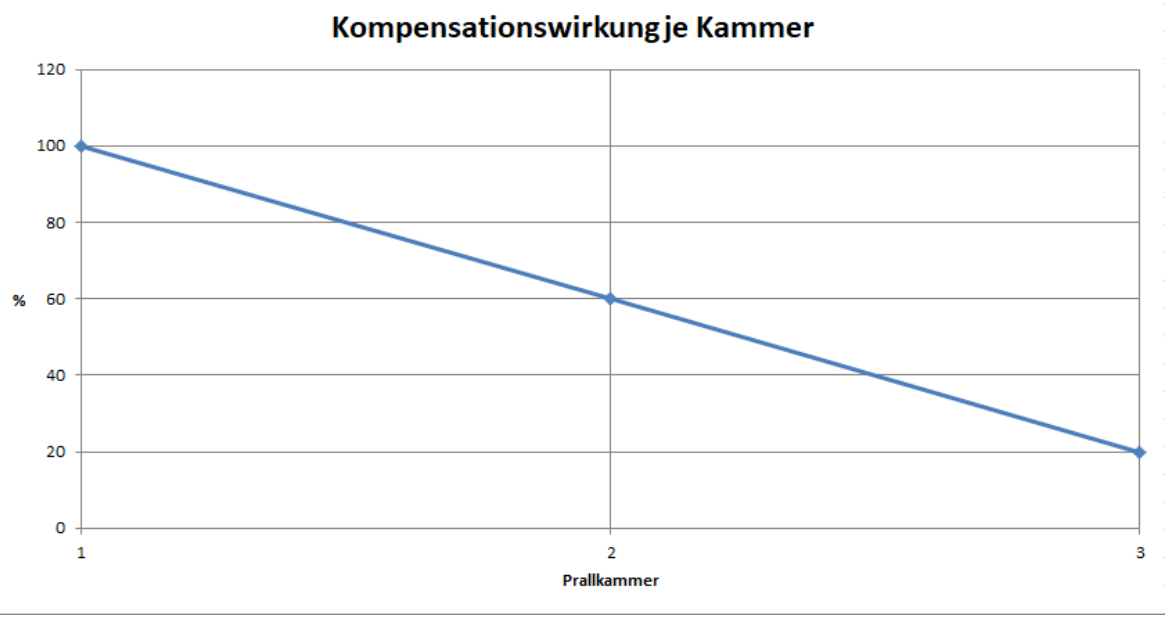


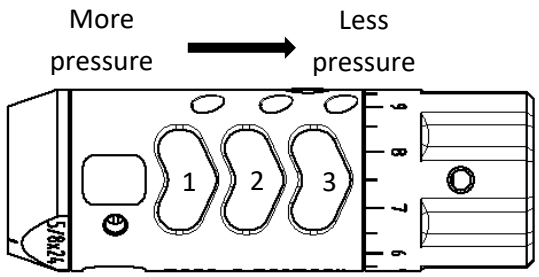
- The muzzle thread and the muzzle shoulder of the barrel must be cleaned of any powder residue and dirt. Then apply a thin layer of temperature-resistant grease or suitable gun oil to the muzzle thread. Then refit the entire brake and tighten it with the specified torque on the thread adapter to the known mark.
- If the threaded adapter cannot be separated from the brake body despite loosening the retaining screws and sufficient care, counter the brake with a slightly smaller screwdriver adapted to the diameter of the first brake channel and unscrew the adapter with the open-end or hook wrench. Proceed carefully and do not destroy the material by proceeding incorrectly.
- If the supplied replacement O-ring has to be installed in the tuner, it should be minimally lubricated with a very thin layer of silicone grease before installation. The O-ring must not be overstretched or damaged during installation. Do not use any pointed or sharp objects during installation. Remove excess grease with a lint-free cloth.

5 Setting compensator system

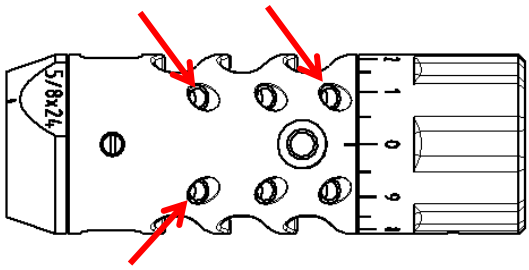
The brake has inclined, upward-facing compensator holes. These are sealed with grub screws when delivered. The holes are there to compensate for or control the upward swing of the weapon. This makes it easier for the shooter to stay on target and to apply follow-up shots more easily. There are 56 settings available for optimum adjustment.

If you unscrew the grub screws on the side facing the gun muzzle, you will get a stronger compensation effect than if you unscrew the grub screws towards the tuner. This only applies to the individual chamber itself.





If, for example, you have an upward and slightly leftward swing in the target, you can remove the first two grub screws and the third from the left. If the compensation effect of the upstroke is not sufficient, remove further grub screws.



Only open as many holes as necessary. Otherwise overcompensation may occur. This means that the gun does not remain on the target after the shot, overcompensates and comes to rest below the target. This effect can be counteracted by closing the bores further.

The diagonally forward-facing holes also direct the gas away from the shooter and reduce shooter stress.

6 Setting the tuner

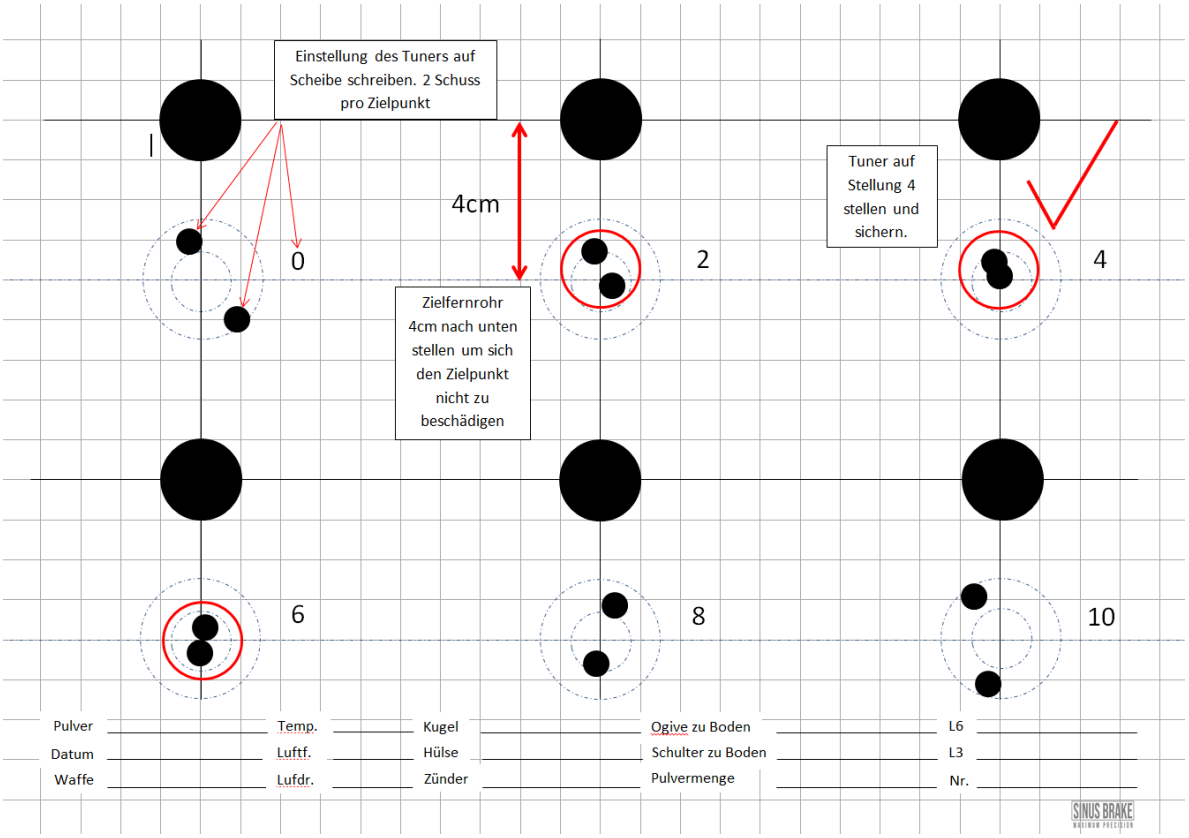
Tip: Adjust your compensator system first before adjusting the tuner, as vibration changes may occur when removing the grub screws.

The tuner changes the barrel vibration with its adjustment. The aim is to find a stable oscillation node that provides the lowest exit error angle of the bullet.

Carry out the settings on a 100 m shooting range. This distance has proven itself due to the low error influencing factors. A suitable target is available to download from our website.

Procedure:

Write the tuner setting on the target and set it to zero (0). Turn your scope turret 4 cm downwards so that the aiming point is not damaged when shooting. With this setting, fire 2-3 shots at the corresponding aiming point. Turn the tuner 4-10 increments further (setting 2-5) and repeat the process until two shots are very close or coincide. Make sure that the swinging knot is stable. The test can of course also be completed with 3 or more shots per setting.



In the example above, you can see that the tuner settings 2, 4 and 6 bring two shots close together. Here we select setting 4 (8 graduation marks) as a stable oscillation node. Stable means that the setting before and after it can also provide an approximately good group and that the center of the group has a similar point of impact (POI). This results in a forgiving range, so to speak, which can compensate for slight changes in the ammunition or brake fouling.

Once you have decided on a setting, you can fine-tune the entire system. In the example, you would test settings 3 and 5 as well as 3.5 and 4.5. You would sit in the direction of the more stable oscillation node.

The above target is to be considered as an example and can of course deviate completely in reality, as every barrel and every system with its components vibrates differently. It can therefore happen that the gun only delivers good groups with setting 18 etc., for example. The tuner provides 20 settings per revolution (20/rev) and offers a **total of 8 revolutions**. The tuner must **not** be used for more than 8 turns, as the lower thread guide leads to inconsistent vibrations and these are reflected in the shot pattern.

Once you have found your final setting, tighten the grub screw in the tuner to the appropriate torque. Test the final setting with a 5-shot group.

Please remember that the shooting performance of a rifle depends on many components. In order to utilize the maximum precision of the Sinus Brake, certain points must be ensured beforehand:

- The barrel must be cleaned and have a certain amount of deposit.
- Use a suitable target.
- The barrel must be in proper condition.
- The shooter should be in a good mental state.
- Try to carry out the test in stable lighting conditions.
- The parallax should be set correctly.
- Use a stable buttstock rest.
- The stock, scope, mount and other attachments must be properly assembled and adjusted and tightened to the correct torque.
- Reloaded and factory ammunition must be loaded in such a way that it fulfills all requirements that contribute to precise loading. With factory ammunition, this is usually ensured in the form of an accurate match cartridge.
- The Sinus Brake must be installed in accordance with the instructions.

If the shooting performance is insufficient, work through the above points. Only then can the Sinus Brake make its full contribution to improving precision.

7 Scope of delivery

- 1x hard case with foam insert
- 1x Sinus Brake with built-in precision spirit level
- 1x business card with QS certificate
- 1x Allen key 2.5mm
- 1x Allen key 2mm
- 1x Flimmerband screw
- 2 x M4x6 grub screws for tuner (1x assembled, 1x replacement)
- 11x M4x3 grub screws for compensator system/threaded adapter (9x assembled, 2x replacement)
- 2x FFKM elastomer O-ring (1x fitted, 1x replacement)

not included in the scope of delivery::

- Hook wrench for fitting the threaded inserts (must be ordered separately in the online store)

8 Technical data

Caliber bore	8.6 mm	.338“
Total length	85 mm	3.35“
Ø Sinus Brake	29 mm	1.14“
Total weight	270 g	9.5 oz
Material	1.4305 Chrom-Nickel Edelstahl	1.4305 chrome-nickel stainless steel
Coating	DLC+	DLC+
Circular spirit level sensitivity	+- 0,1 °	+- 0,1 °

9 Spare parts

Additional thread adapters or spare parts can be purchased via the online store. If you have a special request or defective main components that go beyond the normal wear parts, please contact customer service at info@sinus-brake.de. We will be happy to help you.

10 Revision table

Date	Version	Description
01.10.2022	1	-
01.04.2023	2	Changeover to hook wrench thread adapter

When buying and selling, I as the user confirm the purely civil sporting use.