

INSTRUCTION MANUAL  
Water Rocket Base **Little Bear**

Scholz & Gallus GmbH  
Bessemerstraße 24/26 · 12103 Berlin · GERMANY  
Phone +49 30 98 38 80 17 · info@schoga.com

Thank you very much for purchasing the water rocket launcher »Little Bear«! With »Little Bear« you have purchased a sustainable product that will bring you joy for many years to come. You will find many great suggestions for the construction and operation of water rockets by searching for »water rocket« e.g. on YouTube.

Your Scholz & Gallus-Team



### Table of Contents

Safety Instructions  
Operating Principle  
Operation  
Maintenance  
Scope of Delivery / Technical Data  
What Else Is Possible  
Accessories  
Disposal

### Safety Instructions



Attention!

1. The water rocket launcher is not a toy. Children under 14 years of age should only operate the water rocket launcher under adult supervision.
2. Any irregularity in the operation of the water rocket launcher may only be remedied by the company Scholz & Gallus itself. Otherwise any warranty will be void.

3. Any unauthorised alteration, repair or manipulation – deviating from the instructions for use – leads to the exclusion of any liability.
4. The relief valve must not be adjusted. Operation of the water rocket launcher without a relief valve is not permitted. Before each operation the relief valve must be checked for its mechanical function by pulling the key ring briefly.
5. Safety precautions: When launching the rocket, a safety distance of 4 meters must be maintained. The trigger string has exactly this length. **When the system and the rocket are under pressure – recognisable by the manometer – never hold your head, torso, hands, arms or other parts of your body over the rocket. The rocket can reach its full velocity already at an altitude of 1 meter.** If the rocket gets stuck after pulling the trigger string, wait until the pressure has been released by the internal safety valve. You can recognize this by a water jet shooting sideways out of the starter, which slowly dries up.
6. Once the system is under pressure, the rocket should be launched quickly and must never be moved – e.g. carried around.
7. Make sure that falling rockets do not hit people or sensitive objects.
8. Throw away rockets or PET bottles that show visible wear, such as bends, white spots, abrasion or similar.
9. Rockets with a defective impact absorber or defective tail unit must not be used any longer.
10. When pressurizing the system, a pressure of 4.0 bar (60 psi) must not be exceeded.
11. The water rocket launcher should be operated by one person only. It is to be avoided that e.g. one person inflates while another person is already holding the trigger string in his hand.
12. This manual must be kept in a safe place.

### Operating Principle

1. With the water rocket launcher, PET bottles converted to rockets can be shot into the air. Pressurized air and water are used as fuel.
2. The water rocket launcher should preferably be operated outdoors. Rockets can also be fired without water – i.e. only with air. In this way the water rocket launcher can also be used indoors.
3. All disposable PET bottles with the PCO-1810 closure standard are suitable as rockets, which are almost all disposable bottles, with the exception of bottles from the Coca-Cola Company. Which are manufactured according to the PCO-1881 standard. If you also want to use these bottles as rockets, you can order an additional set of matching retaining claws from us. Before you use a disposable bottle as a rocket, the cap ring must be removed, as the retaining claws snap into its place.



Cap ring present



Cap ring removed

### Operation

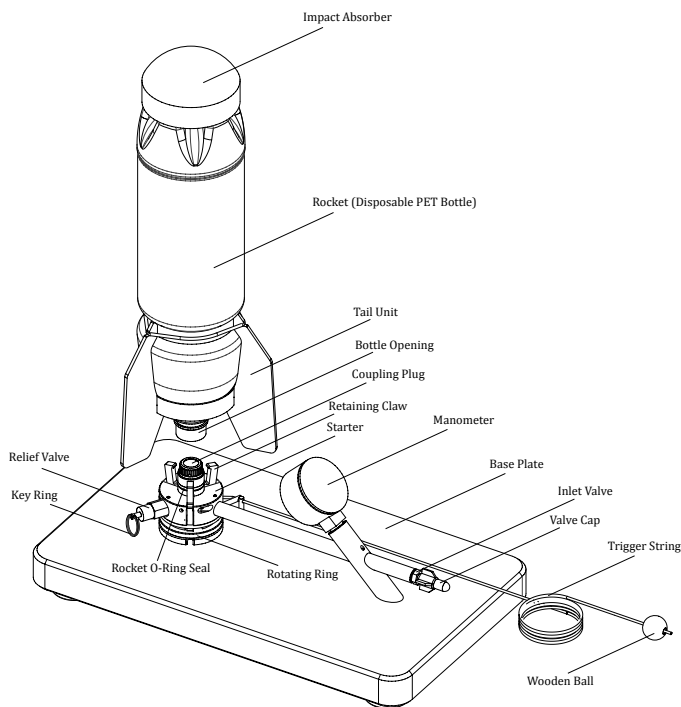


Attention!

1. When choosing a launch site, make sure that there are no uninvolved persons, cars or similar in the vicinity who could be injured or damaged when the rocket lands.
2. Place the water rocket launcher on the ground and make sure that the base plate is level. If necessary, the water rocket launcher can be secured against unwanted movement with a peg. Use

the fold-out anchor eye on the back of the water rocket launcher for this purpose.

- Remove the valve cap and connect the air pump to the inlet valve. A bicycle floor pump is strongly recommended. An air pump of any kind is not included in the delivery.
- Fill the rocket to about halfway with water.
- Turn the rocket over and put the bottle opening quickly over the coupling plug. Press the rocket down with light pressure until the three retaining claws audibly engage.
- Pump air into the system until the desired pressure is reached. Start with a low pressure for the first rocket launches.
- Take the wooden ball of the trigger string in your hand and move away from the water rocket launcher until the safety distance of 4 meters is reached, i.e. the release cord is slightly stretched.
- Pull the release cord with a slight jerk.
- If you fire a rocket with air only, i.e. without water, it is advisable to moisten the bottle opening slightly beforehand.



## Scope of Delivery / Technical Data

1. Scope of Delivery	
Water rocket launcher »Little Bear« and two rockets	
2. Technical Data	
Rocket length	380 mm
Rocket weight	110 g
Pressure	up to 4 bar (60 psi)
Altitude	up to 70 m (water) up to 25 m (air) up to 45 m (air + launch pipe)
Measurements	
Without rocket (H x W x L)	155 x 210 x 360 mm
Weight without rocket	2.0 kg
Patent-No.	DE102018116571

## What Else Is Possible

- In order to reach even greater heights with your rockets, especially when launching them with air only, a 25 cm long launch pipe can be screwed into the starter. The launch pipe has exactly the diameter of the bottle opening. Because of this the rocket can accelerate for the first 25 cm without major pressure loss and thus make better use of the fuel.
- Build yourself a rocket with a parachute!
- Measure the height reached by the rockets using angulation. Or let an electronic sensor fly along!
- Vary the physical parameters such as pressure, water volume, aerodynamic design and weight and watch what happens.
- Build multistage rockets!

## Accessories

- 3 retaining claws in accordance with PCO-1881
- Replacement Rocket
- Launch Pipe
- All parts of the water rocket launcher are also available as spare parts.

## Disposal

Product and packaging can be disposed with normal household waste, but preferably using appropriate recycling services.

## Maintenance

- Make sure that there is no sand or similar on the coupling plug, on the edges of the bottle opening or in the rocket itself.
- Blow out the pump: After experimenting, remove the pump from the water rocket launcher and pump it a few times to remove any water that may have entered.
- The starter is pre-treated with wax lubricant. This ensures a smooth operation. Waxing is a clean and environmentally friendly method of lubrication. From time to time a little wax should be added. In the following places: On the retaining claws and the rotating ring. Always use the same lubricant.
- A perfect function of the water rocket base is only guaranteed if the rocket O-ring seal and the surrounding sealing surfaces are undamaged. Even small scratches can cause leaks. Therefore the rocket O-ring seal and the adjacent surfaces should be checked regularly.
- The water rocket launcher can be cleaned with drinking water. After contact with salt water the water rocket launcher should always be cleaned.
- This model is designed exclusively for the function described above. We reserve the right to make technical changes.