
Complete Guide to the Merlin MicroShot™ for Gas Chromatography



YOUR GLOBAL SCIENCE PARTNER

6 Kelvin Park Birkenhead Merseyside CH41 1LT United Kingdom

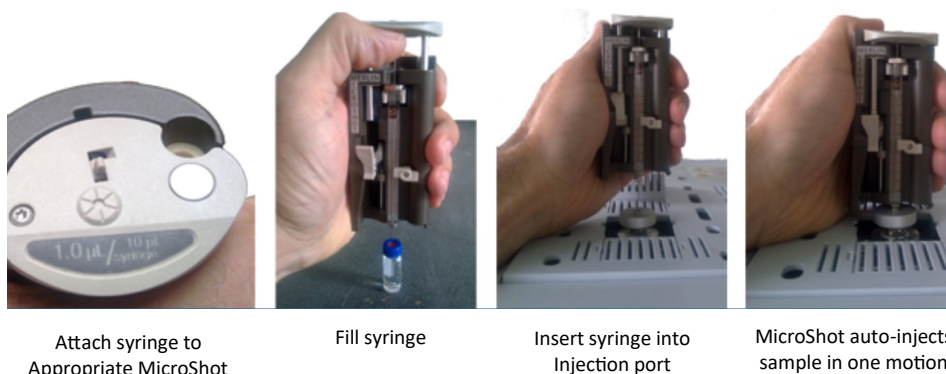
Tel: +44 (0) 151 649 4000 • E: info@greyhoundchrom.com • www.greyhoundchrom.com

What is the Merlin MicroShot Injector?

The Merlin MicroShot injector enables convenient and repeatable manual injections for Gas Chromatography (GC). The unique trigger mechanism makes each injection automatic when the needle is inserted into the injection port. The plunger displacement is fixed for precise volume delivery confirming reproducibility. The Merlin MicroShot uses syringes with removable or fixed 23 or 26 gauge needles with a ball-end plunger detail.

Features

- Precise, repeatable injection volume
- Each injector is calibrated to a single volume
- Simple, fast motion to make injection



How It Works

A GC syringe is mounted in the MicroShot Injector and a spring-driven plunger slide holds and supports the syringe plunger, making it easy to rinse and fill the syringe without damaging the plunger. The sample volume is controlled by calibrated volume rod. When the injector is filled and armed, pushing the syringe needle into the injection port triggers the sample injection, reducing the injection process to a simple motion.

The MicroShot injector is available in 5 fixed sizes which deliver precise, repeatable sample volumes from 0.1 to 2.0 microliters when used with the appropriate 10-uL syringe.

Advantages

Improves injection precision by eliminating the task of carefully adjusting each sample volume by eye

Provides a convenient holder for the syringe and allows easy manipulation of the syringe plunger, which protects these delicate parts

Fast injection minimizes needle residence time in the injection port, which minimizes potential sample discrimination

Provides convenient sampling from a wide variety of sample containers, eliminating the necessity of processing samples into vials specifically for autosamplers

MicroShot Injector™	Part #
MicroShot with Injection Volume of 0.1 μ L	701-01
MicroShot with Injection Volume of 0.2 μ L	701-02
MicroShot with Injection Volume of 0.5 μ L	701-05
MicroShot with Injection Volume of 1.0 μ L	701-10
MicroShot with Injection Volume of 2.0 μ L	701-20

Merlin MicroShot™ Injector

Operating Instructions

The Merlin MicroShot Injector delivers quick and reproducible manual syringe injections for gas chromatography

KEY COMPONENTS

Figure 1 shows the components of the Merlin MicroShot Injector and will be referred to throughout these instructions

CAUTION: Pumping a dry syringe can reduce the syringe life and compromise injector performance. Always supply solvent to the needle tip when moving the syringe plunger.

SELECTING A SYRINGE

The **MicroShot Injector** does not come with a syringe installed and should be purchased separately from Greyhound Chromatography.

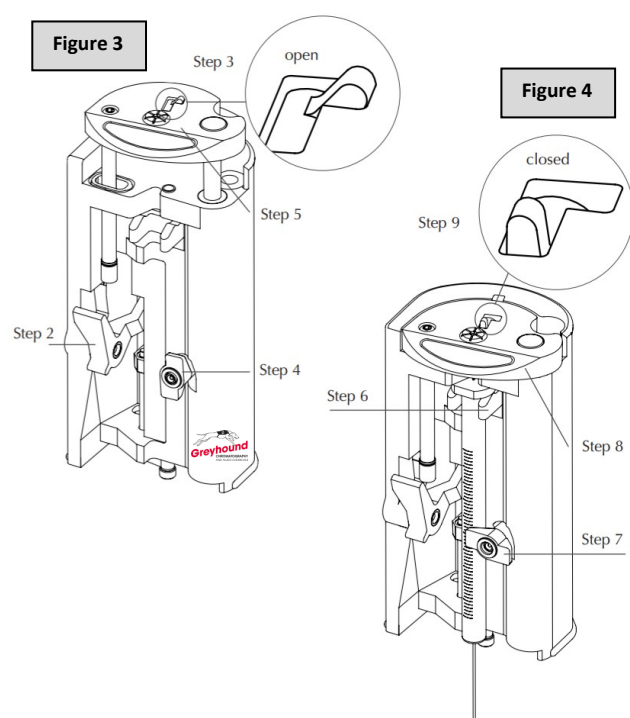
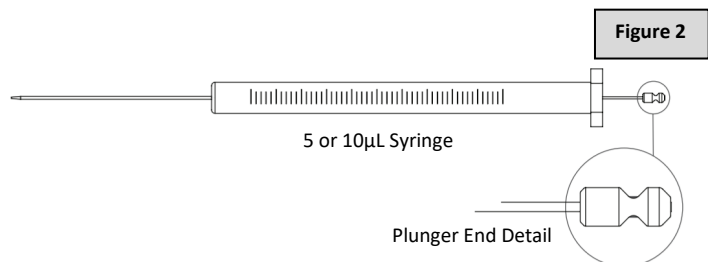
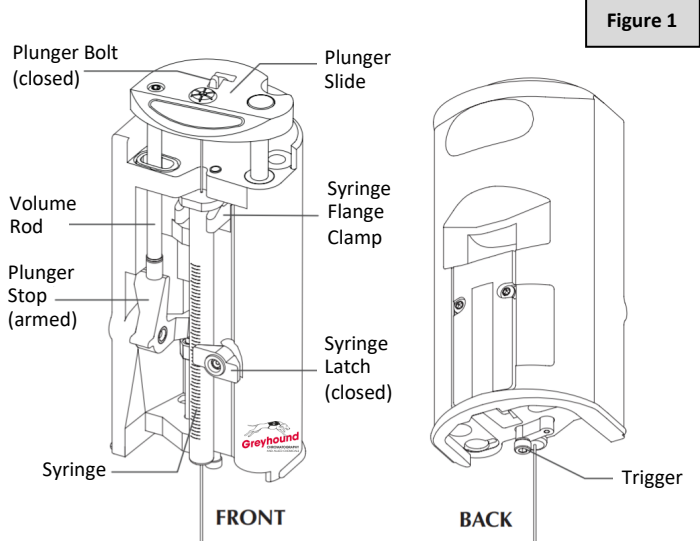
Figure 2 shows the syringe compatibility requirements including plunger end detail, which is important for proper function. A 10 µL syringe will give the nominal injected volume indicated for that **MicroShot Injector** and a 5 µL syringe will give half that volume. Removable or fixed needles, 23 or 26 gauge needles can all be used with the **MicroShot Injector**.

INSTALLING THE SYRINGE

1. To lubricate the **Syringe Plunger**, load approximately 1 µL of solvent into the syringe.
2. Move the **Plunger Stop** to the released position.
3. Open **Plunger Bolt**.
4. Open **Syringe Latch**.
5. Raise the **Plunger Slide** about half way.
6. Slide the Syringe Flange under the **Syringe Flange Clamp**.
7. Close the **Syringe Latch** to secure the syringe.
8. **Lower Plunger Slide** until it stops.
9. Close the **Plunger Bolt** to secure the **Syringe Plunger**.
10. Rinse with solvent to check for free plunger motion

REMOVING THE SYRINGE

1. Open the **Plunger Bolt**.
2. Raise the **Plunger Slide** half way.
3. Open the **Syringe Latch**.
4. Remove the syringe.

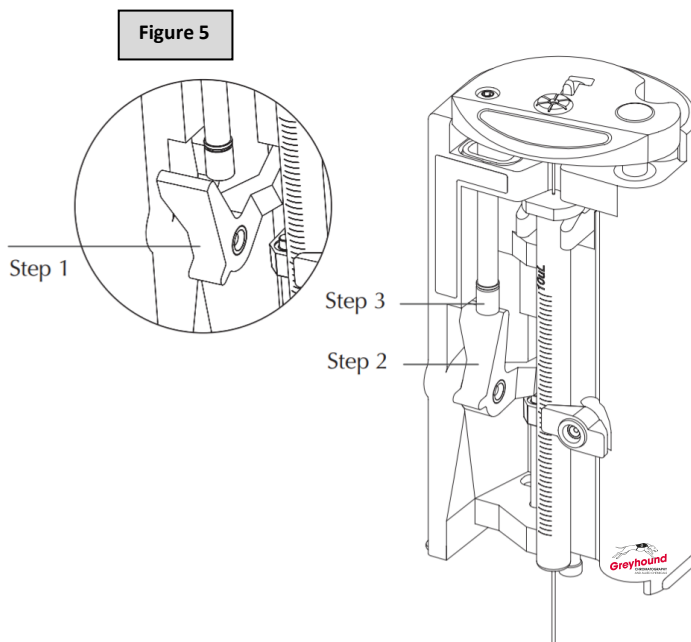


PREPARING FOR AN INJECTION

1. With the **Plunger Stop** in the released position, rinse and fill the syringe with sample using the **Plunger Slide**.
2. Keeping the **Plunger Slide** raised, arm the **Plunger Stop**.
3. Lower the **Plunger Slide** slowly until the **Volume Rod** comes to rest on the **Plunger Stop**.
4. Wipe the needle.
5. The **MicroShot Injector** is now filled and armed for injection.

MAKING AN INJECTION

1. Align the syringe needle with the injection port.
2. Push the needle all the way into the injection port and then withdraw the **MicroShot Injector**. The injection occurs when the **Trigger** is displaced by the top of the injection port.
3. Start the instrument.



SAFETY AND CLEANING

Please use all applicable laboratory safety procedures when using sharp objects or chemical solvents. Laboratory goggles should be worn at all times when working with the **MicroShot Injector**. The injector can be cleaned with warm solution

TIPS FOR BEST PERFORMANCE

For split injections use a small amount of glass wool in the inlet liner to prevent the sample from reaching the bottom of the liner, which would cause vaporization past the split point. Other appropriate inlet liner designs will also serve this same function. Glass wool also helps wick low volatility compounds from the tip of the syringe needle.

An easy way to verify the **MicroShot Injector** is functioning properly is as follows:

- Load and arm the syringe.
- Hold the needle tip approximately 2 cm above a piece of paper.
- Manually push the trigger and listen for an audible click.
- Look for a small spot of liquid on the paper

PROBLEM	PROBABLE CAUSE	SOLUTION
Syringe Plunger end doesn't go into Plunger Slide.	Plunger Bolt is in the closed position.	Move Plunger Bolt to the open position (Figure 3).
Sample doesn't fill syringe.	Syringe plunger not connected to Plunger Slide Syringe needle is plugged.	Close Plunger Bolt (Figure 4). Remove and clean or replace syringe.
Microshot Injector fails to make injection.	Plunger Stop not armed before injection. Trigger is not getting pressed in all the way Plunger Slide or syringe plunger sticking.	Arm Plunger Stop prior to injection (Figure 5). Make sure Trigger contacts septum nut. Remove and clean syringe. Verify free plunger movement.



YOUR GLOBAL SCIENCE PARTNER

6 Kelvin Park Birkenhead Merseyside CH41 1LT United Kingdom
Tel: +44 (0) 151 649 4000 • E: info@greyhoundchrom.com • www.greyhoundchrom.com

© Greyhound Chromatography April 2021