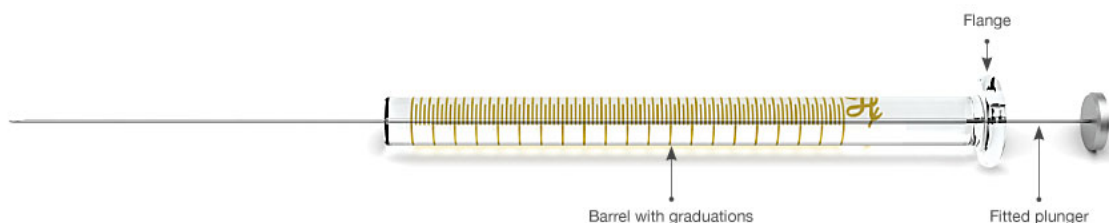


# Technical Information

## Plunger Types

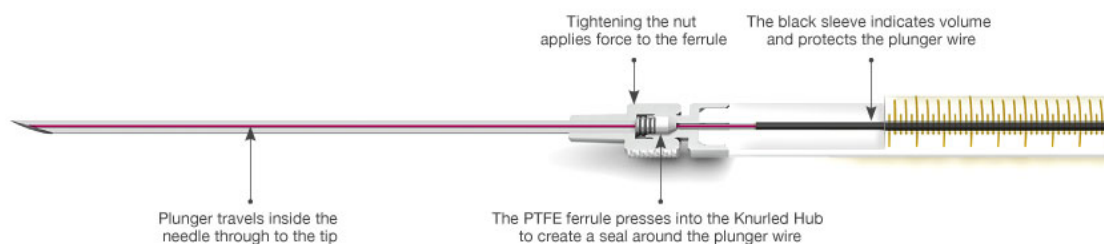
### Microliter Plunger

This is the standard, stainless steel plunger found in 2.5 – 500  $\mu\text{L}$  volume Hamilton Microliter syringes. This plunger is hand fitted to the glass barrel to a tolerance of millionths of an inch to create a liquid tight seal ideal for dispensing solvents. When using samples without dissolved particles, the Microliter plunger has an almost unlimited lifespan because there are no wear surfaces. Also, these plungers are not interchangeable between syringes or replaceable due to the custom manufacturing process.



### 7000 Series Microliter Plunger

This plunger is exclusively for 0.5 – 5  $\mu\text{L}$  volume 7000 series syringes. The end of the plunger has a tungsten wire extension that fits the entire length of the needle all the way to the tip, resulting in zero dead volume. This 7000 series syringe is used for dispensing minute liquid volumes.



### Gastight Plungers

Hamilton manufactures a variety of Gastight plungers depending on the intended use of the syringe. All Gastight plungers are made of stainless steel or aluminum and feature a polymer plunger tip, often PTFE. These plungers can be used for manual or automated applications with liquids or gases. The plungers are interchangeable and replaceable for 10  $\mu\text{L}$  – 100 mL volume syringes.



#### Manual Plungers

Manual plungers come in two designs, one features a standard dome button and the other features a threaded plunger button. Syringes smaller than 1 mL have a stainless steel plunger for syringes, as shown in the picture on the left. Manual plungers 1 mL and larger are coated with PTFE and come with a threaded hole that allows them to be mounted into automated syringe pumps, which is demonstrated by the image on the right.



### X-Style Plunger

This plunger is used for syringes 500  $\mu$ L and smaller intended for use in an automated syringe pump. A special plunger button protects the delicate plunger wire by stopping the pump at the zero line before damaging the tip. The stop also provides a 6-32 threaded hole that is used to mount the plunger into the syringe drive.



### XP-Style Plunger

This plunger is used on XP-3000 modular digital syringe pumps and has a stop to limit damage to the plunger tip. This plunger is for half-height syringes with a 30 mm stroke length.



### XL-Style Plunger

This plunger is used on the XL-3000 modular digital syringe pumps and has a stop to limit damage to the plunger tip. This plunger is for full-height syringes with a 60 mm stroke length.



### XB-Style Plunger

This plunger features a stop and a back bushing. The back bushing increases the plunger tip life, maintains proper plunger alignment and reduces the particles generated by plunger and glass contact.



### Bubble Free Prime Plunger (BFP)

This plunger is used exclusively in syringes for Microlab 600 diluters and dispensers. The plunger features a conical plunger tip that extends through the threaded termination of the syringe into the Microlab 600 valve. This design helps remove air from the system and reduces the priming cycles required.



## Reinforced Plunger

Small volume syringes require extremely small plunger wires. For uses that are prone to bending and breaking these small plungers, it is recommended using a reinforced plunger. These plungers are available in both Microliter and Gastight versions in the 800 and 1800 syringe series respectively.

