



GLASS EXPANSION

Quality By Design

User Guide for D-Torch

Agilent® 5000 Series ICP-OES



Before you Start

Congratulations on the purchase of your D-Torch.

As supplied, the D-Torch is fully assembled. Table 1, lists the D-Torch parts that can be ordered separately.

Item no.	Part Number	Description	Qty
1	31-808-3578	D-Torch injector adaptor	1
2	31-808-2962	Injector ferrule 6.0mm	1
3	Refer Note	Injector	Refer note
4	31-808-3568	D-Torch body	1
5	31-808-3570	D-Torch quartz outer tube	1
6	31-808-3566	Outer tube retainer	1
7	JC-13	Metal Ball-joint Clip	1
8	70-803-0920	Injector ferrule tool	1
9	SAFEGLOVE-MED	Safety gloves	1 pair

Note: Item 3. D-Torch injector not supplied with standard D-Torch assembly (shown for reference only.) There is a range of different injectors suitable for this D-Torch - These can be purchased from your D-Torch supplier.

Item 7. Metal ball-joint clip is provided to fix the ICP spray chamber in place with the D-Torch.



Disclaimer: Glass Expansion supplies products to customers with the assumption that only qualified individuals who are properly trained in the appropriate procedures will use our products. It is our customer's entire responsibility to safely store, handle and use the products ordered from Glass Expansion. We assume the requisitioner to be experienced, competent, safety conscious professionals. Glass Expansion assumes no liability for any damage or injuries -physical, emotional or mental, arising out of persons incorrectly or inappropriately using or handling our products. We also assume no liability for any damage to an instrument or product from incorrect installation, handling or use of the product by the user.

Scope

The following pages of this document will explain:

1. Precautions for personal safety and D-Torch preservation
2. Installation with your ICP-OES instrument
3. Remove D-Torch outer tube
4. Re-attach D-Torch outer tube
5. Access D-Torch Injector
6. Replace Injector ferrule

Instructions

** The D-Torch is covered by US Patent 8,232,500 B2*

1. Precautions for personal safety and D-Torch preservation.

- Always wear safety gloves (item 9) and safety glasses when handling ICP torches.
- The D-Torch is made from high-grade engineered materials - handle with extreme care.
- It is recommended you review and understand this procedure before handling the D-Torch assembly.

2. Installation with your ICP-OES instrument

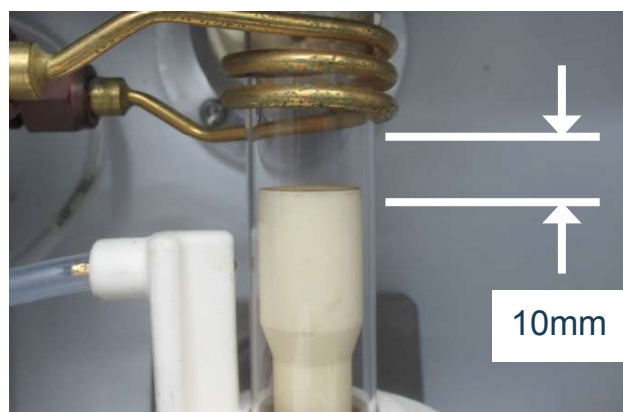
Install the D-Torch in the same way as your existing torch.

2.1 Ensure the D-Torch is fully inserted before engaging the torch lever.

The inner tube should be no less than 10mm below the RF coil before engaging this lever.



Step 2.1a



Step 2.1b

3. Remove D-Torch outer tube

The D-Torch outer tube is accurately located in place and can be removed at any time by completing the following steps:

- 3.1 If fitted, remove D-Torch assembly from ICP (not shown).
- 3.2 Unscrew the outer tube retainer (at the tube base) by approximately 1/2 turn.
- 3.3 Grip outer tube (lower end, near D-Torch body) and gently wriggle it from side to side. **Note:** You will hear a “click” as the outer tube releases.
- 3.4 Fully unscrew the retainer (item 6) and carefully withdraw the outer tube from the torch body.



Step 3.2



Step 3.3



Step 3.4

Note: Outer tube is permanently fitted with a tapered ferrule, **Do not** attempt to remove the ferrule from the outer tube.

Inner tube is permanently fixed to D-Torch body, **Do not** attempt to remove the inner tube from the D-Torch body.

4. Re-attach D-Torch outer tube

To replace the outer tube, complete the following steps:

- 4.1 Check that both locating surfaces (of the outer tube and torch body) are clean and free from damage.
- 4.2 Carefully slide the outer tube over the D-Torch inner tube – the outer tube will self locate into the torch body.

Note: You must align the branded stripe of the outer tube's hole with the D-Torch body stripe.

- 4.3 Tighten the retainer to fix the outer tube in place (Moderate pressure by hand is adequate – Do not over tighten).



Step 4.1



Step 4.2



Step 4.3

- 4.4 You can now return the D-Torch to your ICP as normal (not shown).

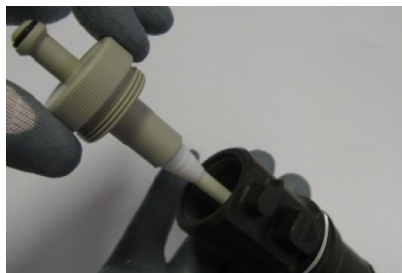
5. Access D-Torch Injector

To remove injector:

- 5.1 Unscrew the injector adaptor from the rear of the D-Torch and carefully remove the adaptor from D-Torch body.



Step 5.1

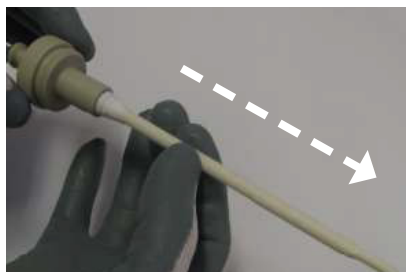


Step 5.1 continued



Step 5.1 complete

- 5.2 Slide the injector out from the injector adaptor. Check condition of the ferrule – Replace the ferrule if damaged or deteriorated (refer section 6).



Step 5.2



Step 5.2 complete

To re-install Injector to the D-Torch

Repeat steps 5.1 and 5.2 in reverse order.

Critical note: Push the injector all the way into the adaptor (injector must be seated in the correct position).

6. Replace injector ferrule

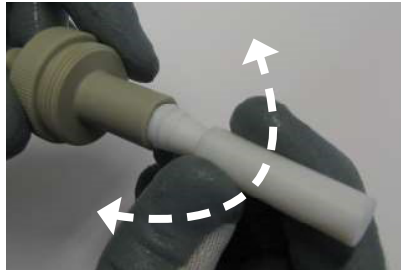
To replace the injector ferrule, complete the following steps:

- 6.1 Insert the injector ferrule tool (item 8) into injector ferrule then pivot tool sideways to unseat the ferrule from the injector adaptor - *Discard ferrule.*

Hint: You need to apply a moderately high amount of force to un-seat the injector ferrule from the adaptor.



Step 6.1



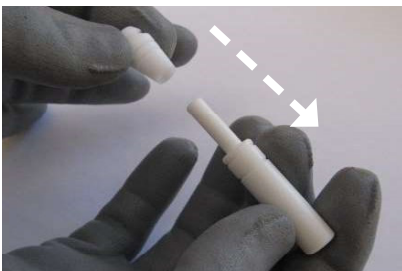
Step 6.1 continued



Step 6.1 complete

- 6.2 Place a new injector ferrule (item 2) onto the stem of injector ferrule tool. Position the ferrule into the adaptor and push together until you feel the ferrule 'seat' with adaptor o-ring.

Hint: It will help if you pivot the injector ferrule tool (similar to step 5.1) whilst pushing-in the injector ferrule.



Step 6.2



Step 6.2 continued



Step 6.2 complete

Finished: If you have any questions regarding the D-Torch assembly or this procedure, please contact your supplier.

Consumables list

Part Number	Description
31-808-3568	Base and Inner Tube for Agilent 5000 Series D-Torch
31-808-3570	Quartz Outer Tube for 5000 Series SVDV/VDV D-Torch
31-808-2962	Injector Ferrule for D-Torch
31-808-3566	Retaining Ring for D-Torch Outer Tube
31-808-3578	Injector Adaptor for D-Torch
SAFEGLOVE-med	Safety Gloves, Medium
70-803-0920	Injector Ferrule Tool 6.0mm
70-803-1500	O-ring kit for Agilent D-Torch ICP-OES
50-100-1636	O-ring Removal Tool
JC-13	Metal Ball-joint Clip

For more information please visit www.geicp.com or contact one of our offices below.

Asia Pacific

6 Central Boulevard, Port Melbourne, VIC
3207, Australia

Telephone: +61 3 9320 1111
Email: enquiries@geicp.com

Americas

31 Jonathan Bourne Drive, Unit 7 Pocasset,
MA 02559, USA

Telephone: 508 563 1800
Email: geusa@geicp.com

Europe

Friedenbachstrasse 9, 35781 Weilburg,
Germany

Telephone: +49 6471 3778517
Email: gegmbh@geicp.com